

IMPORTANCE OF Ph. D. THESES IN FURTHERING RESEARCH: A MODEL DIGITAL LIBRARY

THESIS

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IN

LIBRARY AND INFORMATION SCIENCE

Under the Supervision of



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DEDICATION



*To the ever-lasting memories of
My Beloved Mother*

Late (Mrs) N. Kamalakshi Amma

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CERTIFICATE

This is to certify that the work embodied in the thesis entitled "IMPORTANCE OF Ph. D. THESES IN FURTHERING RESEARCH: A MODEL DIGITAL LIBRARY" is submitted by Shri J. K. Vijayakumar for the award of the degree of Doctor of Philosophy (Ph. D) in Library and Information Science. It is a record of the bonafide research work carried out by him under our supervision and guidance. This work has not been submitted elsewhere for a degree/diploma in any form.

It is further certified that he has worked with us for the period required under the Ph. D. degree ordinance of Bundelkhand University, Jhansi.



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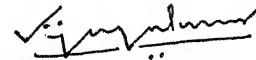


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DECLARATION

I do hereby declare that the thesis entitled "IMPORTANCE OF Ph. D. THESES IN FURTHERING RESEARCH: A MODEL DIGITAL LIBRARY" submitted to Bundelkhand University, Jhansi has not previously formed the basis for the award of any degree, diploma or other similar title or recognition. This work embodies the results of my original research and reflects advancement in this area.

Date: 15-04-2005



(J. K. Vijayakumar)

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PREFACE

The creation and use of digital information is increasing phenomenally all over the world. This phenomenon adds Librarians traditional job profile with new information in new formats, which have to be collected, organized and disseminated through new platforms. The important shift in their role in information transfer is that, the digital environment compels them to do content creation, in which Librarians were not playing any role in traditional systems of publication. The Electronic resource, which is changing the entire academic and scholarly communication process, becomes a reality in Indian Universities through UGC Infonet and the stake holders are becoming more aware and started looking for more resources and latest information. Librarians in India are also slowly setting their minds to take up the challenges and actively getting involved in e-content creation and hosting them on institutional repositories.

This changing environment forced Universities worldwide, to think about digitizing their theses and dissertations, since these resources belongs to the Universities and are not widely accessible outside the campus or Libraries. By looking into the problems facing in accessing them, lots of projects have come up in many countries to go for Electronic Theses and Dissertations (ETDs). It is with this context, there is a need to study the present scenario in Indian Universities and to propose a model system on par with International initiatives. The

study conducted and proposal made are described in this Thesis in Five Chapters.

Chapter 1 describes about the increase in Ph Ds worldwide and its importance in furthering research. The present scenario in the dissemination of Doctoral research results, the problems faced during accessing them, the archival and publication practices of Ph D Theses are narrated in detail. An introduction of ETDs has given as a solution to these problems and this chapter ends with a conclusion that the recent trend in electronic information availability is forcing Universities to go for e publishing of their theses literature.

Chapter 2 provides the statement of problem, objectives of the study and research methodology followed in the study. A detailed investigation is available in Literature search done under the heading of present scenario of Ph D Theses, its bibliographic control, shifting from TDs to ETDs and major issues in creating ETDs. The world wide literature search reveals that there are lots of projects going on, they have developed policies or mechanisms to resolve the issues like, copyright and intellectual property, long term archiving, resistance from academia and publishers etc.

Chapter 3 contains the results of the study conducted through questionnaire based survey among Librarians, University Guides and Research Scholars from various Indian Universities. It is found that access to Ph D Theses is still facing lots of problems, especially for accessing collection from other Universities. Few Universities have

already started ETD Projects, and majority of them will be starting the projects soon. The need for an experienced national level agency for coordinating the work, national level policies from agencies like UGC, necessary financial and technical guidance etc is identified through the analysis. Most of the academics are supporting the idea of ETDs, but still a moderate majority is supporting its Global access through Internet.

Chapter 4 suggests a model ETD system derived based on the study and special requirements of India, which can be used by any Universities. The thoughtful selection of PDF and other file formats, DSpace and other Softwares, Workflow, Infrastructure and supports required are being discussed in detail. A prototype ETD System using DSpace software is described step by step according to the suggested workflow. The facility to integrate any metadata schema, its supportiveness to OAI-PMH protocol and CNRI handles to share the content across the globe, its compatibility to integrate multilingual standards like UNICODE were the few criteria to select DSpace as the software to the model.

Chapter 5 includes suggestions to effective utilization of Ph D Theses literature through a Digital Library. The limitations of the study and scope for further studies are also identified. It ends with a conclusion that Universities can start ETD programmes at their level and can be expanded to national and international level when apex agencies in this area come up with policies and frameworks.

This manuscript includes lots of figures and tables to describe the ideas in an appealing manner. References cited in the text and a separate detailed Bibliography are also included. A brief of INFLIBNET Theses database, List of live ETD projects worldwide and list of responded Universities along with sample Questionnaires are also included in this thesis as annexure.

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CHAPTER – 1

**IMPORTANCE OF DOCTORAL
RESEARCH AND
PROBLEMS IN ITS ACCESS:
AN OVERVIEW**

1. Introduction

Access to information is crucial for education, sciences, and culture and for fostering democracy in the information society. The principle of free and universal access to information as well as freedom in the creation, treatment and dissemination of knowledge is a fundamental element of the global common good of humanity. Academic research, especially doctoral research plays the significant role in the world of knowledge, scholarship and the intellectual heritage of our society. Academic research is quantitatively and qualitatively considered as the foundation for furthering the future investigation in any field. At the same time, the doctoral research is not disseminated in public domain due to various reasons of policies such as copy right, IPR, time lag, publication procedures etc. Information Communication Technologies playing a major role in the drastic change of academic scholarship during the last decade, especially in creation, access and dissemination of information. Web publishing makes the Universities to alter and strengthen the process of creation and communication of academic research through reconsidering the ways and practices in scholarly publishing and archiving practices. We are fortunate that Universities and policy makers already started taking advantages of web publishing in this important are of scholarly communication.

2. Doctoral Research in Universities

In a global scenario, doctoral research programmes are considered to be essential to the development of Higher Education, where Universities are the key players in carrying the major responsibility for molding good researchers at different stages in their career. This comes necessary to address the changing needs of good research in an ever rapidly transforming knowledge society, and to improve the quality of doctoral programmes. In fact Universities are substantially investing in conducting of research, which leads to degrees like Ph Ds. It is observed that there are variations in the educational system leading to doctoral degrees, predominantly of USA, UK, German and French models. It is also found that the number of students undertaking and completing higher degree theses has been growing rapidly, all over the world in recent years, and a country wise statistics of some potential countries are provided here. According to *National Science Foundation (NSF)* survey, during the 10-year interval between 1988 and 1998 the U.S. universities collectively awarded almost 400,000 doctorates, as compared to a total of 316,413 for the preceding 10-year period. They have awarded more than one million doctorates (1,174,442) over the last 40 years, of which 33.8 percent were granted during 1988-98 (*NSF, 1998*). The latest survey from *NSF* shows that 423 universities in the United States that conferred research degrees awarded 40,710 doctorates during the 2002-2003 academic year, that shows an increase of 1.9 percent from the 39,964 doctorates awarded in 2002, and a 4.5 percent

decline from the all-time high of 42,645 in 1998 (*NSF, 2003*). Between 1996 and 2000 there was a 27% increase in the number of doctorates awarded by UK institutions, which stood at 13,670 at the end of 2000 (*Beckett, 2002*). *Genoni and Cowan* estimated that the 19,254 enrolments in the year 1991 for higher degree by research programs in Australian universities rose to 37,374 by 2000. They also accounted that during the same period higher degree by research completions rose from 2491 to 5325. That means a total of 26,620 PhD theses were completed during the decade from 1991 to 2000 in Australia (*Genoni and Cowan, 2002*). *Lee, Kim and Hwang* say that in Korea approximately 3,500 doctoral degrees are awarded every year comprising all Universities (*Lee, Kim and Hwang, 2001*).

Indian Higher Education system built upon the British system, is one of the largest and oldest systems of higher education found anywhere in the world. As of now there are 320 Universities, of which nearly 131 are of Affiliating Universities. Besides there are deemed universities, open universities, universities under ICAR, ICMR etc, institutions of national importance, institutes like IITs and IIMs which offer Doctoral Programmes (*UGC Website, 2005*). Indian universities are also playing a major role in generation and dissemination of knowledge by conducting research works and producing Ph D theses as a unique genre of information source. University Grants Commission, the apex body of Indian Higher Education provides the statistics of

Doctorates awarded in India during 2000-01 as 11,534 and during 2001-02 as 11,899. (*UGC Website, 2005*) Again another statistics based on Ph D Theses Database received at INFLIBNET shows that nearly 8000-10000 Ph Ds are awarded in India, every year (*Vijayakumar and Murthy, 2001*).

3. Importance of Doctoral Theses

The term PhD is short form for Doctor of Philosophy (Philosophiae Doctor), which is frequently referred to as a Doctorate. As a PhD scholar, one is expected to pursue structured, supervised research into one of the many related fields in which the Faculty has expertise. At the end of this period they are expected to write an extended thesis, demonstrating evidence of their capacity to pursue scholarly research. The results of this research should make an original contribution to knowledge and be of a standard appropriate for publication. Before pursuing for a Ph D one needs to be sure that he/she has a keen personal interest in the topic to be researched - and an interest in the process of research along with a strong academic background with a good first degree (*Lancaster University Management School, 2005*).

Thomas, Nelson and Magill pointed out that although the dissertation is intended to be a vehicle for the publication of new research, its traditional five or six chapter format renders it unsuitable for publication without substantial revision to make it

conform to the genre of the journal article. Due to the extensive revision, 1/3-1/2 of all dissertations remain unpublished (*Thomas, Nelson and Magill, 1986*).

It is a fact that a thesis or dissertation must be “an original contribution to scholarship”. Another purpose of a thesis is to be the basis of a book that, when published, will become part of the scholar’s documentation in his professional career and scholarship. But the simple and primary purpose of a dissertation is that it fulfills a requirement for the doctoral degree. Some of these dissertations are collections of previously published articles, the original research and writings done throughout the program of work. And finally the production of a dissertation shows that the researcher is ready to do scholarly work of the highest quality. There is no doubt about that Doctoral theses are contribution to the world of knowledge. Further the results, conclusions and recommendations invariably have impact towards the economical and social upliftment. In addition, the thought content also paves way to new vistas of investigation and encourage inter-disciplinary approach, which will strengthen the fabric of life styles in the society. Thus this is an ongoing process in the higher education scenario.

4. Dissemination of Doctoral Research

Isaac and Stephen identified that its access have traditionally been quite limited as to what they can say and do, and even more restricted with regard to when, where, how and to whom they are accessible. They pointed out that these limitations are established and maintained in part, through policies set by committees, departments, graduate schools and libraries, which reflect the regulatory bodies' limited conceptualization of what the dissertation is and should be. They established that accessibility by the scholarly community to Dissertations has not historically been a priority, where as typically, only two copies of a print dissertation exist and are available without a fee—the archival copy, which remains a permanent part of the university library's collection, and the circulating copy, which may be available through inter-library loan in few countries (*Isaac and Stephen, 1992*).

Brace argued that the importance of published theses as a primary source for the scholars who are pursuing research at present varies by discipline. Humanities scholars regularly search through dissertation abstracts for finding out dissertations relevant to their topic. There are many disciplines in which the dissertation is not used often as a primary source where it will show up as a book or journal article. For these disciplines, the dissertation has another function that of a kind of proto-document that

will be turned into a book or scaled down to articles in peer-reviewed journals. This practice reveals that there is an assumption that if the information is "good enough" it will show up somewhere else in a more "respectable" form. However we notice that the fact is about half of dissertations have never got published in another form. Could it really be the case that all of this information is irrelevant or unimportant? (*Brace, 2002*).

Urs identified the lacunas in publication, control and access theses information in India, where most unpublished theses are hard to get hold of, as they are filed only in the university library where the student has worked. The Indian doctoral literature is beset with many problems like Lack of Systematic acquisition, Lack of Access, Uncertain publication practice, Enormous Growth in the number of theses etc. Printed theses remain locked in the libraries and are consigned to be frozen assets. (*Urs, 1999*).

All such observations are relevant while dealing with the Doctoral theses, with considerable educational, social and economic value to the community at large, which form a rich information source of original research data enveloping the entire world of subjects. Even a part of this research information is disseminated through journal articles or books, much of it unpublished or published in an abbreviated form. Now a

days, the decrease in publication of academic monographs and the growing number of theses being awarded, where the full dissemination of this valuable information has become insufficient. Even the Universities and their libraries collecting, recording and providing access to printed copies of theses, the access to it suffers from the absence of a single, easily accessible bibliographic source which provides comprehensive coverage of completed theses, regional, national and international level.

5. ETD (ELECTRONIC THESES AND DISSERTATIONS): A SOLUTION?

It is a fact that, the ever rapidly developing networking and digital library technologies are the reasons for ETDs (Electronic Theses and Dissertations) gaining momentum on university campuses worldwide. Simply the ETDs are electronic versions of printed theses, where the old documents have been scanned and converted into PDF. Alternatively it could be a recently completed piece of work produced and archived in Word or produced in Word and converted into PDF in order to be made available on the Web. ETDs allow more adventurous students to express their research results in creative and flexible ways that would not be possible if they were limited to paper based output. 'Born digital' theses may include audio and visual material and may not even be in a traditional linear format. There is some variation between countries in the use of terminology e.g. some universities refer to doctoral

theses and some to doctoral dissertations. The term ETD accommodates these differences and is becoming used internationally.

Due to the technical advancements and ease of use, the Ph D Scholars are producing their theses electronically for printing the required number of copies and submitting. With a systematic effort these electronic genre of Theses can well be maintained and archived. Digital libraries of electronic theses and dissertations (ETDs) offer an alternative to the waste of valuable academic scholarship in the form of Theses and Dissertations (TDs) and offer researchers and University Libraries in India opportunities to explore the possibilities of electronic publishing trend in academic sector. With the emergence of UGC Infonet, the aspiring and dream project of University Grants Commission, which also aims at Content Creation by Indian Academic Sector, a detailed study of the present issues related to theses collection and shifting to electronic publication, becoming important.

6. CONCLUSION

In recent years, availability of abstracts, journal articles, conference proceedings and book chapters in electronic format has become commonplace. As researchers and academicians have come to expect quick and easy access to information from any location at any time, increasing demands have been placed upon resource providers.

Expectations relating to the production and utilization of theses have proved no exception to the rule. Knowledge explosion is taking place in all disciplines and paving way for innovative research, which are directly quantified in Doctoral Theses in various disciplines. Several systems of higher education models are contributing towards production of doctorates. In order to avoid the duplication of research and take stock of frontier areas where innovation is needed for the society are the need of the hour. In order to achieve this, there has to be an easy access to such contents universally in an accepted format, while respecting the laws, rules etc. In India the agencies and their sporadic efforts are reviewed and taken into account and suggests the pivotal issues to be addressed to achieve the free full text access of the context.

CHAPTER - 2

**STATEMENT OF THE PROBLEM,
OBJECTIVES OF THE STUDY,
RESEARCH METHODOLOGY AND
LITERATURE SURVEY**

1. Statement of the Problem

Most of Indian unpublished doctoral theses are very difficult to get hold of, as they are stocked only in the respective university or departmental libraries where the student has carried his research. As a research resource, the Indian university theses have a limited distribution and may be under used outside the host institution. In most of the Western countries, the theses are regarded as publications, and widely available in print, after a gap of some time. As the widespread use of the Web and the increased availability of theses in electronic form in foreign countries raise the opportunities for the wider dissemination of a thesis electronically. But in India, theses are officially treated as manuscripts, raising certain barriers to their use. The Indian theses literature is faced with many problems like lack of systematic acquisition, lack of access, uncertain publication practice and multi-lingual problems, besides variations in procedural practices. Theses resources are not considered for digital content creation or digitization in India. So far, the access and availability problems have not been solved in an acceptable manner. Indian research is poorly covered by international bibliographic databases and journals. While the theses produced by Indians from Western countries are available through UMI because of the established practices, most T&Ds produced in India are not accessible even outside the concerned

Universities. It is a fact that Indian Universities Theses have limited distribution and may be under exploited out side the host University.

2. Objectives of the Study

- i. To study the present practices of collection, organization and access to doctoral theses in selected Indian Universities
- ii. To analyse the practices of doctoral theses access and publication at International level with the advent of IT
- iii. To learn the attitude towards electronic theses and dissertations from selected doctoral students, guides and librarian in India
- iv. To suggest a model digital library of doctoral theses for Indian Universities.

3. Research Methodology

The study was conducted keeping in view that the new technologies and online facilities offer the prospect of improved learning aids in networked electronic environment. At the first phase, problems at international level and their initiatives in this direction were analysed in detail through the Literature Search. Based on this, a survey was conducted to determine current practices

and uses of theses within Indian academic community. Separate questionnaires (See Annexure VI at Page 154) were distributed to Doctoral Research Scholars, Guides and University Librarians of selected Indian universities randomly selected from all parts of India with sufficient subject representation. The survey was also aimed to initiate a discussion and collect the attitude towards going electronic theses among Indian academic community. The collected data, opinions and suggestions were analysed in detail. Based on the analysis and International level experiences described, a framework for a model digital library for Indian Doctoral Theses was built as a prototype. The model can be used and made available to academic and scholar community for wider usage, where Indian theses resources can be readily available, without losing any time, distance or language barriers.

4. Literature Search

4.1 Present Scenario of Ph D Theses Collection

As a part of this study, the published literature describing present scenario of doctoral dissertations in various countries have been surveyed. *Isaac and Quinlan* identified the limitations of access and publications of doctoral theses as traditional because of the policies of regulatory bodies

(Isaac and Quinlan, 1992). Edminster supports this finding in the doctoral research (Edminster, 2002). Mathews and Wiggins opine that graduate schools and university libraries take great pains to ensure that theses documents are prepared according to accepted standards and are preserved for future scholars to examine, because of its valuable information content (Mathews and Wiggins, 2001).

Ives and McLean describe the problem of keeping only paper copies of dissertations, without reliable back-up in different medias to avoid its loss due to theft, fire and decay and to save valuable shelf space. They also give the example of USA where, Pro Quest is the designated "national repository" by the Library of Congress, who deems the Pro Quest dissertations as a remotely held collection. The Library was interested in having their retrospective titles placed in this collection since microfilming and digitizing an institution's dissertations and master's theses are important ways to showcase its research and academic history, provide access for students and researchers from a single entry point and enhance the institution's standing in the international academic arena (Ives and McLean, 2004).

In NDLTD website, Fox and McMillan admit that due to the services provided by UMI access to dissertations has increased in recent decades at

International level. With a database containing about 1.5 million abstracts, UMI microform archive allows printing on demand of microform or paper copies. But they point out that even though this service is useful, the high cost of copies and other concerns lead to relatively few purchases, almost never more than 7 per year for any one title. Their study of circulation data from the Virginia Tech library indicates that the average number of times a thesis or dissertation is checked out per year is small (2 or 3, respectively, during the first 6 years after completion. They also agree that theses may be locked up --- the only method of restricting access --- but it is important only when there are issues of security or proprietary information or pending patents (*Fox and McMillan, 1997*). *Young* informs the latest service of U M I from 1997 by making new dissertations available in an electronic form, which can be ordered, for about \$20, over the Internet (*Young, 1998*).

Weisser and Walker point out that traditional method of archiving and storing theses and dissertations are inefficient and unwieldy. They also point out that print forms have limitations: they cannot include multimedia elements, they cannot include interactive elements, and accessing them through interlibrary loans or repositories such as UMI can be time consuming, expensive, and limiting. They for see the changes in electronic publishing of

theses by changing how scholarship was produced and disseminated, where technological innovations are having an impact on our conceptions of reading, writing, research, and publication (*Weisser and Walker, 1997*).

Friend outlines the scenario from U K and identifies that even when a good indexing tool to theses exists in a particular country, such as the *Aslib Index to Theses* in the UK, there is a time-lag between the completion of the thesis and its appearance in the indexing publication. He says that if universities were commercial organisations they would want a potential market to know quickly about their achievements, but so often within universities the completion of the thesis is seen as sufficient in itself, without any need to make the results of the research available to anybody else (*Friend, 1998*). It is true that the best research is often published soon after the completion of the thesis in commercial publications like academic journals, but what happens to the thousands of theses that are completed and are not published? The answer is that they languish on library shelves, taking up valuable space and are rarely consulted. UK Theses Online Group conducted a survey in UK Universities and identified that Theses are used in libraries rather than in departments and found that consulting theses is difficult because

of the physical constraint of consulting in a particular place, a library building (Roberts, 1997).

From Australia, *Bate* reports the lack of easy access and lack of usage of theses literature due to a number of factors: lack of knowledge that the thesis exists; lack of information about the contents of the thesis; lack of ready availability. She advocates that electronic theses are easily located as well as easily and readily accessible if delivered over the web (*Bate, 1999*). *Cowan and Genoni* admit that it is an issue of considerable importance that theses are adequately recorded in easily accessible and searchable bibliographic sources. They also admit that despite the work done by libraries in collecting and recording theses, access to this material currently suffers from the absence of a single, easily accessible bibliographic source providing comprehensive coverage of completed theses (*Genoni and Cowan, 2002*).

Things are not different in other parts of the world. *Ubogu* says that the unavailability of information on T&Ds in most African countries has been a source of challenge to many librarians. There have been various efforts at some form of bibliographic control of T&Ds produced in some countries through the compilation of bibliographies or abstracts of theses and

dissertations, some at national levels and others at institutional level. These compilations rarely leave the borders of the institutions/countries where they were compiled (*Ubogu, 2001*). DATD (Database of African Theses and Dissertations) Project website says that access to theses literature is not easy, even within the institutions where they are submitted. In Africa particularly, they are an under-utilised information resource, because the nature their production is very limited and the only copy available for public access is usually in print and can only be consulted physically in a university library (*DATD Website, 2005*). In China also even though Theses and dissertations have long been regarded as the basis to researchers, most of them languish in obscurity in university libraries and archives (*Jin, 2004*).

Urs describes the present problems with Indian thesis literature as follows;

Lack of Systematic acquisition, storage and archiving policies. Most Universities in India have no systematic policy or procedure to acquire, archive the thesis. There is no archival plan. Most Universities in India require Doctoral students to submit a certain number (usually three) of typewritten and bound thesis to be submitted for evaluation. Once the evaluation process is complete and the degree is awarded to the student, one copy of the thesis is

sent to the University library for storage and reference. The University library receives the thesis and they lie mouldering, with no efficient way of locating them.

Lack of Access. The thesis literature largely remains unutilised due to lack of access. Immediate physical access to most theses is almost impossible in India, in the absence of an archival plan and bibliographic organization mechanism. In India, there is no bibliographic tool which covers and indexes thesis. Currently the INFLIBNET has developed a thesis database, which at present covers 1,40,000 theses submitted to Universities in India since 1900. However there is no definite plan or procedure for the acquisition of thesis.

Uncertain publication practice. Much of the Doctoral research work in India do not see the light of the day through publications, as many authors do not publish contents (or a portion) of the completed thesis in the open literature. Even if some of them are published, they only bring out the end results, and a good deal of information is left behind, and the research work in its entirety is often lost to scientific scholarship. Though no specific study has been carried out, citation studies of Indian Publications reveal that thesis have miniscule impact on research.

Enormous Growth in the number of thesis. Higher education has grown enormously in India since Independence. The number of Universities has

grown, and doctoral making appears to be a national academic obsession, and doctoral research output constitutes a significant volume (Urs, 1999).

4.2 Bibliographic Control of Doctoral Theses

Since the Doctoral Theses constitute an important part of scholarly information, there were initiatives in several countries and at international level to have a sufficient mechanism for its bibliographic control, through printed indexes or online databases. *Dissertation Abstracts International*, *Dissertation Abstracts On disc* and *ProQuest Digital Dissertations* (all are from ProQuest / UMI), *Index to Theses* by ASLIB, *The BRITS Index* from British Library, *American Doctoral Dissertations and Comprehensive Dissertation Index* from USA, *Union List of Higher Degree Theses in Australian University Libraries*, *TESEO Database* and *Catalog of Spanish Theses* from Spanish Universities, *TESIUNAM* from Mexico, *SITE-Theses System* of Brazil, *DATD* of African Universities and *SUDOC* of French Academic libraries, *TESI ONLINE* from Italy, *Die Deutsche Bibliothek Online Catalogue* from Germany, *DissertationDataBank* from Austria, *TESIS EUROPEAS SOBRE AMERICA LATINA* from Latin America, *Catalogue of Norwegian Libraries* from Norway are the few examples to cite. There are discipline wise Indexes like *Doctoral Dissertations in Musicology (DDM-*

Online), which is an international database of bibliographic records for completed dissertations and new dissertation topics in the fields of musicology, music theory, and ethnomusicology, as well as in related musical, scientific, and humanistic disciplines (*DDM-Online, 2005*).

In India, Association of Indian Universities started publishing of Doctoral Bibliographies in all subjects and Theses of the Month column through its weekly publication University News (*AIU Website, 2005*). In 1994, INFLIBNET hosted a regularly updated free online union database of Ph D theses submitted to Indian universities. At present it is freely available for searching at INFLIBNET website and contains around 1,52,000 of unique bibliographical records covering all subjects and all universities. Being the data supplied by the Universities themselves, it is considered as the only authoritative online-tool available to find-out the research out put of Indian Universities. (*Vijayakumar, Hosamani and Murthy*). Earlier with the support of NISSAT and later from Ford Foundation, University of Mysore initiated a project called "Vidyanithi" to host individual full-text doctoral theses from various universities who are willing to become a member of this venture (*Vidyanidhi Website, 2005*). Apart from these initiatives, there are lots of publications and journals features Doctorate awarding in India. The major role

played by INFLIBNET in Bibliographic Control of Indian Doctoral Theses is narrated in Annexure III at page 137. National Social Science Documentation Centre (NASSDOC), ICSSR has a library of Ph.D Theses in social sciences (approved by the Indian universities) form a part of its core collection. As a national institution, NASSDOC aims to build a truly representative collection of Ph.D. theses in each of the areas that make up the social sciences (*NASSDOC Website, 2005*).

4.3 From TDs to ETDs

The emergence of electronic publishing and digital technologies changed the campuses worldwide, and it is more visible in digital publishing of institutional scholarships such as theses. Lots of projects started at Institutional, Regional and National level along with ETD Consortia during recent few years. A few and important initiatives selected from different regions are identified here.

The concept of electronic theses and dissertations (ETDs) was first openly discussed at a 1987 meeting in Ann Arbor arranged by UMI, and attended by representatives of Virginia Tech, University of Michigan, SoftQuad, and Arbor Text. After lots of workshops and meetings, the

Networked Digital Library of Theses and Dissertation (NDLTD), which was originally called the National Digital Library of Theses and Dissertations, was established at Virginia Tech in 1996 with the initial funding of Southeastern Universities Research Association (SURA). Its mission was to coordinate ETD-related activities in terms of diffusion of the ETD-DL and support for adoption and implementation of the innovation. NDLTD is a voluntary international federation of universities and other institutions who have an ETD-DL or are interested in learning more about ETD-DLs. It has 174 members as on March 2005 worldwide, which includes 30 effective members who contribute content and 154 Universities from various countries (*NDLTD Website, 2005*).

The formation regional consortium like the Appalachian Regional ETD Consortium (AR-ETD) and Ohio Link are also underway in various countries. In 1999, the Ohio graduate deans' group in USA, the Regents Advisory Committee on Graduate Study (RACGS), asked Ohio LINK to create a single, commonly shared ETD site to represent the work of Ohio's scholars. The ETD Center launched in 2001, as a joint project of OhioLINK and the Regents Advisory Committee on Graduate Study (*OhioLink ETD Website, 2005*). Issue number 7 of Transforming Libraries, published by

Association of Research Libraries (ARL) summarizing the current state of electronic theses and dissertations (ETDs) by reporting on efforts in 13 institutions in USA and Canada, including NDLTD and UMI. (*Transforming Libraries, Issue 7, 2001*]. UMI's ProQuest Digital Dissertations™ (PQDD), a key part of the ProQuest® line of research databases since 1997, has renamed to ProQuest Dissertations & Theses (PQDT) and the project will be functional by the year 2005. The system developed by Berkeley Press supports the users to submit their Theses. (*ProQuest Website, 2005*).

UNESCO is also playing an important role in promoting ETDs at international level and developed an ETD Guide, as a resource for graduate students who are writing theses or dissertations, for graduate faculty who want to mentor ETD authors, for graduate deans who want to initiate ETD programs, and for IT administrators at universities. (*UNESCO ETD Guide Website, 2004*]. UNESCO also established an ETD Clearing House in collaboration with Humboldt University, Germany (*UNESCO ETD Clearing House Website, 2005*).

The Brazilian Digital Library (BDL), as a Brazilian gateway try to integrate electronic full-text journals, electronic full-text proceedings, Internet

interesting resources for science and technology, various university OPACs, some ETD data banks, the Brazilian National Library OPAC and various electronic archives. The first attempt to integrate Brazilian theses and dissertations in a unified database was the SITE-Theses System, coordinated by Institute of Brazil for Information Communication Technologies (IBICT) in 1996 and today integrates more than 140 000 records of theses and dissertations from 15 universities. (*Ciência da Informação Journal*, 2001). *Southwick and Pavani* update us about this project that to date, approximately 50 universities have received software and training for implementing an ETD system. With the support of UNESCO, the project has also reached universities in other countries from Argentina, Colombia and Uruguay, who started pilot-projects using the technology supplied by IBICT (*Southwick and Pavani*, 2004).

In 1997, Canada started "Theses Canada Portal", as a follower of National Library of Canada's Canadian Theses on Microfiche Service launched in 1965. This aims to acquire and preserve a comprehensive collection of Canadian theses at Libraries and Archives of Canada and to provide free access to this valuable research within the country and around the world, through partnership with the many Canadian universities (*Theses*

Canada Website, 2005). Apart from this various individual Universities also started their ETD Programmes and the universities already involved in ETD projects have strengthened their initiatives, and serve as a pilot in the national process (*Bonnelly, 2003*). French Universities are also initiated several ETD Programmes and a *Multi Disciplinary Theses Server* is hosted with limited content and access.

MacColl reports that the ETD movement has not yet taken root in the UK up to 2000. *Theses Alive* is one of three projects in electronic theses funded by JISC. The others are *DAEDALUS*, led by Glasgow, and *E-theses in the UK*, led by the Robert Gordon University. *Theses Alive* will work with both of these, and will share an advisory structure with the latter. (*MacColl, 2002*). National Library of Portugal initiated a project in 1999 and re-started in 2001 called DiTeD which is open to 14 public and 10 private universities existing in Portugal, as also to the several hundreds of polytechnic schools and similar (*Borbinha and others, 2004*).

The DiVA –project (Academic Archive On-line) was initiated at Uppsala University in Sweden and has evolved from being a project at one university to a joint project with partners from seven universities in three

different countries (Denmark, Norway and Sweden). *Moe and Muller* underline that taking part in a joint project offers several advantages both financially and when it comes to implementation and further development and it has already produced a system for submitting, retrieving and archiving ETDs and reports (*Moe and Muller, 2004*). The Online Doctoral Thesis Server (TDX) is a digital collection of doctoral theses presented at some Spanish universities. It allows for remote consultation of the complete text of theses over the Internet, additionally allowing the user to construct searches by author, title, knowledge area, university of publication, etc. This service, coordinated by the Consortium of University Libraries of Catalonia (CBUC) and the Supercomputing Centre of Catalonia (CESCA), and sponsored by the Department of Universities, Research and the Information Society of the Generalitat (Government) of Catalonia (*TDX Site, 2005*).

In Africa, Rhodes University mounted its digital thesis on the World Wide Web in 1998 and became the first institution in Africa to do so, and made it mandatory for students to submit digital files of their theses and dissertations. *Ubogu* foreseen that the joining of universities in the Southern African region would lead to the building of a digital library of theses and dissertations in the region. In addition, the South East Academic Libraries

(SEALS), a library consortium of tertiary institutions in the Eastern Province of South Africa, is considering an ETD programme (*Ubogu, 2001*). University of Namibia developed ETD using Green Stone software for the entire country (*Namibian Theses Website, 2005*).

In Egypt, all theses and dissertations are available on the Ain Shams University Network (ASUNET), including theses and dissertations of Egyptians who graduate from any other international universities are also recorded. The database entries contain bibliographical data as well as the abstract on each thesis. The University Information Network (UIN), which is headquartered at Ain Shams University in Cairo, serves as a national clearing house for theses and dissertations completed in Egypt, which carries out a set of activities very similar to those of UMI (*ASUNET Website*). In Venezuela, a group of universities and research institutions created the National Network of Digital Libraries for Electronic Theses in October 2003 and Venezuelan Association of Public and Academic Libraries (ANABISAI) is the leading agency (*Rosales and Bauste, 2004*).

Australian Digital Theses (ADT) program under the auspices of Council of Australian University Librarians (CAUL) is designed to improve

access to, and enhance transfer of, the research information contained in theses by providing a full text version available from the desktop via the web. 26 Australian Universities are part of this programme (*ADT Website*). *Genoni and Cowan* report that the program is based on a distributed database, with member institutions undertaking to load deposited theses onto local servers in PDF format, and load the metadata which provides bibliographic access to the theses on a server at the University of New South Wales (*Genoni and Cowan, 2002*). Apart from various Universities in Germany (See Annexure IV at Page 142) Humboldt University at Berlin started Dissertation Online project and later on it is undertaken by the Co-ordination Agency at the German National Library (Die Deutsche Bibliothek) since September 18, 2002 (*Dissertation Online Website*).

Chinese universities have realized the importance of ETDs, and some local ETD programs have been carried out. Later on China Networked Digital Library of Theses and Dissertations (CNDLTD) project has been carried out by CALIS (China Academic Library and Information System) to improve the accessibility of local ETD collections. CALIS is a federation of academic libraries in China, and has more than 152 members and seven local centers (*Jin, 2004*). Korea Institute of Science and Technology Information (KISTI)

has developed a digital library for Electronic Theses and Dissertations (ETDs) as a web-based multilingual full-text system, since 1998 known as KIST ETD (*Zhang and Lee, 2001*).

Indian academic institutions are also started ETD projects in recent years. *Indian Institute of Technology* in Mumbai, Chennai and Kharagpur have their ETD collections made available on campus network. *Indian Institute of Science*, Bangalore and *National Chemical Laboratory*, Pune have recently established ETD project using DSpace software. *Vidyanidhi* Initiative at Mysore University tries to evolve as a national level repository of Indian Doctoral Theses. Few Indian Universities already made policies and rule for collecting e-format of Ph Dtheses from their students. More detailed analysis is provided in the next chapter along with data analysis.

4.4 Major Issues of ETDs

4.4.1 Copyright and IPR Issues of ETDs

Copyright protects the labor, skill and judgment that someone - author, artist or some other creator - expends in the creation of an original piece of work, whether it be a literary work, a piece of music, a multimedia programme, a Web page, a painting, a photograph, a TV programme, or

whatever. *Oppenheim* points out that creating conditions, which favor the production of useful ideas introduces one of the most complicated matters associated with ETDs—that of intellectual property protections for authors. He says that any piece of Information will survive only through high accessibility and continued use, where new generations of scholars must access and incorporate the work of others into their own. They have to continually reproduce and develop the ideas society needs. Improved access to TDs through ETDs can contribute greatly to the dissemination and preservation of university research, but at the same time, intellectual property protection for researchers is also very important (*Oppenheim, 2004*). *University of Pittsburgh* clearly states in its ETD Website that the copyright issue involves two components: Protecting the information/work produced as part of the research program; and Granting license to University or to any ETD Programme to make the work available for use. This also includes obtaining permission to use parts of the work that have already been published in other sources (*University of Pittsburgh Website*).

Urs worked for developing a policy frameworks for creating an archive of theses and dissertations and identified most of the copyright issues related to scholarly communication apply equally to the world of theses and

dissertations. She argues that scholarly work should be freed from Copyright jargon, because the university researches usually supported by public funds and based on Collaboration. The Lack of formal publication practices result in the lost of scholarship and intellectual heritage. The tradition of a doctoral student defending the thesis in public implies that doctoral research works should be made publicly accessible (*Urs, 2004*). To address potential conflicts over copyright, NDLTD has established a system where access to an ETD can be delayed temporarily to allow an article or book to be the only source of the author's material. Holding back electronic publication of an ETD can allow the paper publication to come out first. Too, access to an ETD from outside the author's university can be blocked, ensuring the economic incentives required by many publishers (*Fox and others. 1997*). *Andrew* says that the adoption of electronic theses and dissertations in a university will require a number of alterations to the existing copyright agreements between the rights holders, usually the primary researcher, and those responsible for theses management, usually the university library. Before entering into any agreements it is critical to determine who actually owns the copyright to the work as there are a number of key stakeholders in the production of theses, including the author, host institution and perhaps the funding bodies (*Andrew, 2004*).

4.4.2 Long time Preservation and Archiving

Several aspects must be considered in order to guarantee long-term access to the digital resources e.g. the preservation of the bit-stream of digital objects, realizing migration, and emulation strategies. An essential component to achieve long-term availability is the use of Persistent Identifiers (PI) that solve the problems of unequivocal resource identification and reliable addressing, just like in other means of electronic publishing. *Schroeder* identifies Long-term availability of digital objects e.g. online dissertations embedded in a distributed heterogeneous information environment causes new challenges. As a solution, the implementation of URNs at the German National Library (Die Deutsche Bibliothek) within the international name space of national libraries "National Bibliography Number" (NBN) was selected. (*Schroeder, 2003*). Through a survey among 16 US Universities regarding practices for long-term preservation of ETDs, *Libner* identified the importance of use of preservation metadata schemes such as METS for ETDs; and ETD preservation in the context of general models and infrastructures for digital preservation, including the OAIS Reference Model and institutional repositories. (*Libner, 2003*). *Leigmann* also explicated the role of metadata in this process at Die Deutsche Bibliothek using a model of the Deposit System for Electronic Publications designed by the NEDLIB project (*Liegmann,*

2003). *Müller* believes that a generalized archiving workflow based on usage of URN:NBN as a unique identifier for digital files between a local repository and a national archive, developed focusing on the variety of publishing platforms and systems currently used by Swedish universities, will be useful for others (*Müller, 2004*). The team at DiVA Project identified the use of XML will be useful for long term preservation. *Zhao and Jiang* report from China that long-term preservation of ETD, accessing and displaying of special characters such as mathematical expressions or chemical molecular formula etc are still issues to be solved in the ETD arena (*Zhao and Jiang, 2004*). GRACE - Grid Search and Categorization Engine is an attempt to apply an innovative Grid-based solution that will meet the challenges of searching a global heterogeneous collection of documents. The goal of the project is to build a distributed search and categorization engine that will run on the European Data Grid (EDG) and its successor, the Enabling Grids for E-science in Europe (EGEE) (*Scholze and others, 2004*).

In deciding on archival procedures, the following factors can be considered:

- Making and maintaining tape backups of ETDs should be standard operating procedure; however, magnetic media are not secure from data loss.

- Keeping an archival paper copy, at least for an initial period, could ease the transition to electronic format for those stakeholders who would resist abandoning print completely.
- Writing the dissertations to CD-ROMs might provide more-secure long-term preservation.

Crowe says that For long-term preservation, which brings up the question of technological obsolescence, one must think of not only the content but also the medium. The two common methods of digital preservation are refreshing and migration. Refreshing data (copying the content periodically, such as from an old tape to a new one) is not likely to solve the long-term problem. For complex files, critical functionality in the original file can eventually be lost. The technique of migration, however, holds more promise. It is possible to migrate older files through newer stages of technology when the new system has been designed to emulate the old so that it can accept the old files. Migration preserves the data and form of the original. Most current hardware and software designers take care to ensure that new versions will accept older files (*Crowe, 1998*).

4.4.3 Resistance from Academia

Goldsmith says that we must realize the problems in coordinating from an academic and administrative point of view with the diverse disciplines and

variety of personality types, when try to implement a new thing in a rigid system, like higher education. We have to explore some of the pitfalls and possible solutions to these problems and then convince them the advantages for having an ETD on-line global library, marketing faculty research, students, and the entire university (*Goldsmith, 2004*). *Edminister and Blair* identified that the resistance on the part of faculty is both epistemological and technological, like including multimedia files alongwith the ETDs. The continued lack of clarity on the incentive and reward for digital scholarship, even after the attempts of many disciplinary associations is also a reason for faculty's resistance, despite the potential for their contribution to the scholarly community (*Edminister and Blair, 2004*).

The support of academic staff and senior management within the university is key to the success of a programme to introduce and sustain an ETD collection. Generating enthusiasm and obtaining the necessary changes to policies and regulations may take a significant length of time. Faculty will continue to be responsible for upholding the quality of the thesis or dissertation, whether that thesis or dissertation is submitted using electronic formats or through paper. Printed versions of the textual components of an ETD can always be made available to committee members at their request. If non-text elements of the ETD are part of the defense, the committee can

consider the most effective way to ensure that all members of the committee have access to non-text elements during the defense.

4.4.4 Issues of Publishers

When the researcher submits his/her theses in an ETD System, he is embarking on a form of publication of his work; he is making it available and accessible to a wider range of readers, than a University campus. The research work is thus being made available is relevant to the decision that a book or journal publisher might later make decision about to publish or not to publish the same work, if the ETD allows world-wide accessibility on Web. Reputed journals always insist on the first publication, therefore they would reject researchers article. It is not possible to generalize about which journals might adopt which policy, but many journals with an excess inflow of papers might well consider the prior availability of the work as reason to pass over it and allocate their scarce space to another less widely available paper. The violation of publishers' publication policies is one of the main concerns of faculty and students embarking on ETDS and it is often difficult to discover the publishers' policies and thus even more difficult to properly inform faculty and students about these policies. We can understand the seriousness of the problem, when University of Cincinnati has developed a database of links to publishers' journal policies called the Academic Journal

Policy Database (AJPD) with a goal to provide a global mechanism to share information and facilitate electronic publishing education (*Academic Journal Policy Database*).

A survey of Faculty and students in Virginia Tech University reveals that though it is obviously still an unresolved issue, an ETD would not preclude book or journal publication of research should be encouraging to students and their faculty advisors who are working in an increasingly electronic environment (*Seamans, 2003*). But, in another survey available at <http://lumiere.lib.vt.edu/surveys/results/>, 53 publishers were asked the following question "*According to the editorial policy governing the journal(s) identified, under which circumstances would a manuscript derived from a WEB-BASED dissertation be considered for publication?*" 25 publishers (47.1 percentage) welcomed this idea where 10 publishers (18.87%) suggested that it should be considered on an individual basis. In a professional paradigm where the publication of original work is the coin of the realm, students and faculty advisors are naturally concerned about providing open access to dissertations that may or may not count as prior publication or that contain information considered sensitive in fields where competition for original credit is high. However, in a recent survey of journal editors and publishers,

82% said that an online thesis or dissertation widely available through a Web-based archive would not be considered prior publication according to their journals' existing policies; only 4% said that an online thesis or dissertation with access limited to campus or institution would be considered prior publication. Yet, 40% of graduate students who publish ETDs are advised by faculty to restrict access in order to protect their professional interests. Such restricted access threatens to undermine the very purpose for which the ETD Networks like NDLTD was created (*Edminster and Moxley, 2002*). In a recent survey conducted in China by CALIS, they let students and their advisors to determine the online accessibility of their ETDs. The majority of students allowed their ETDs to be viewable online soon after submission, while the others elect to protect their ETDs for a certain period of time. For example, of the 2,340 ETDs submitted by students of Shanghai's Jiao Tong University in 2003, 69 percent of wanted their ETDs be accessible online immediately, 22 percent gave permission for their ETDs be viewable after one to three years, seven percent agreed to their work being made available after four to five years, and only 2 percent wanted their ETDs to be protected for more than five years, or not to be accessed at all. (*Jin, 2004*).

5 CONCLUSION

Electronic publication also has limitations, like access to hardware and software, access to telephone connections, and knowledge of protocols. But these limitations will go away with time, when we consider the limitations of print forms, like inability to include multimedia elements, its production cost, time-consuming in publishing and the dependency on the inter-library loan programs. Electronic publication can make these works accessible to students, researchers, and others, at the same time this will help in furthering distance-learning programs. *Weisser, Baker and Walker* says that electronic publishing of important works of scholarship such as theses and dissertations can, ultimately, have a powerful impact on our concept of scholarly publishing in general. Many scholarly journals, particularly in the hard sciences, have already begun publishing online. Students, and faculty, need to be familiar with reading, writing, and research in electronic formats, and to begin thinking of "text" as more than mere words on paper (*Weisser, Baker and Walker, 1997*).

The literature search shows that, even though there are issues of concern, world wide campuses are marching ahead to ETD projects and the issues will be resolved in near future.

CHAPTER - 3

DATA ANALYSIS AND FINDINGS

1. Introduction

As mentioned in the Research Methodology, a survey was conducted at national level with focus on Ph D Research Scholars, Research Guides and University Librarians, through specially designed Questionnaires (See Annexure VI at Page 154). Research Scholars and Guides were selected from the participants of INFLIBNET's E-Resources awareness programmes conducted at INFLIBNET and at various Universities across the country. They were familiar with latest IT developments taking place in Information transfer and working with Universities where electronic information culture has already emerged.

Separate questionnaires were also sent to University Librarians from 87 randomly selected Universities with following criteria;

- Funded under UGC, or
- Connected to UGC Infonet, or
- Getting connected to UGC Infonet, or
- Having sufficient e-resources availability, and
- Equal Geographical Coverage.

The survey was aimed to initiate a discussion and to know the attitude towards going electronic theses among Indian academic and research community, where the idea of electronic theses are gaining much attention day by day. Through this survey and data analysis in this chapter, an attempt is made to reflect the exact picture of doctoral theses collection, its usage, difficulties in access, academic and research community's attitude towards digital archiving and electronic publishing etc in Indian Universities.

2. Data Analysis and Discussion

2.1 University Librarians

Questionnaires sent to Librarians of 87 Universities, selected to be surveyed as per the above-mentioned criteria. Librarians from 65 Universities (See Annexure VI at Page 154) participated in the survey and 22 did not responded to the survey due to the unavailability of the responsible persons. A detailed analysis of their responses is given below in tabular and graphical forms from Page 45 to 64).

2.1.1 Average Number of Doctorates Awarded

It is found that out of 65 Universities, 29 (44%) awarded more than 2000 Doctorates and 56% Universities awarded less than 2000 Doctorates. Further study through personal communications and Theses database at INFLIBNET shows that, there are Universities who have awarded more than 20,000 Doctorates (like University of Calcutta) and more than 10,000 Doctoral Theses (like Banaras Hindu University). Through further analysis it is learned that newly established Universities or Universities with less number of departments, have less than 200 Doctorates awarded. Through literature search it was found that around 8000 Doctorates are awarded every year in Indian Universities. The data analysis given in Figure 3.1 and further study make it very clear that, Indian Universities altogether hold a huge volume of Doctoral Theses in their Libraries.

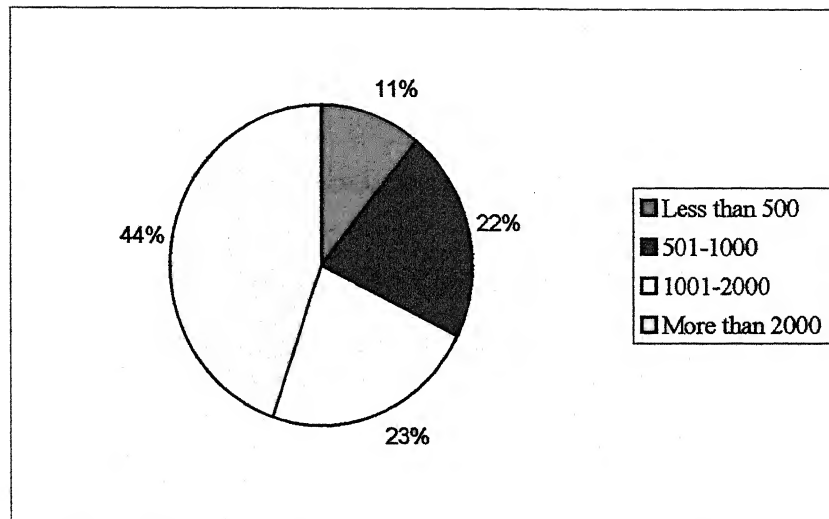


Figure 3.1- Average Number of Doctorates Awarded

2.1.2 Distribution of University Research Departments

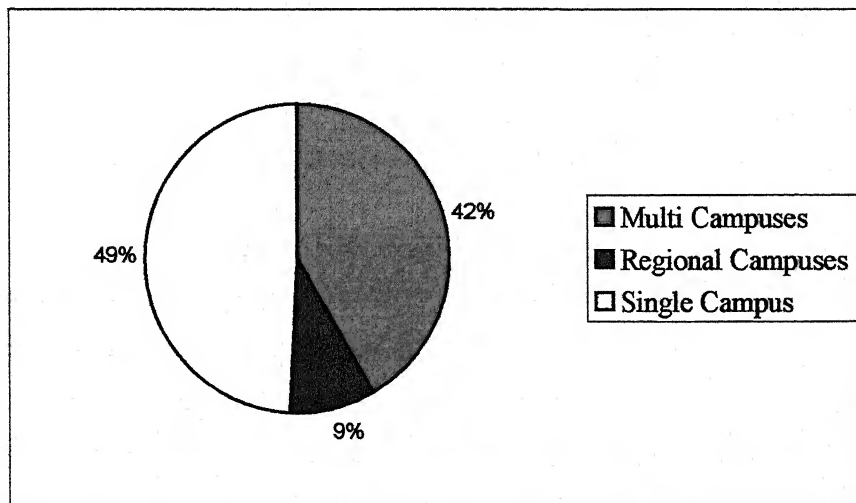


Figure 3.2 - Distribution of University Research Departments

Figure 3.2 shows that the departments of 33 Universities (51%) are scattered in Multi Campuses or Regional Campuses. If these Universities do not have a policy to keep all the Theses in Central Library along with copies in

different Campus or Regional Libraries, access to Theses collection from the same University will become more difficult.

2.1.3 Archiving of Ph D Theses collections

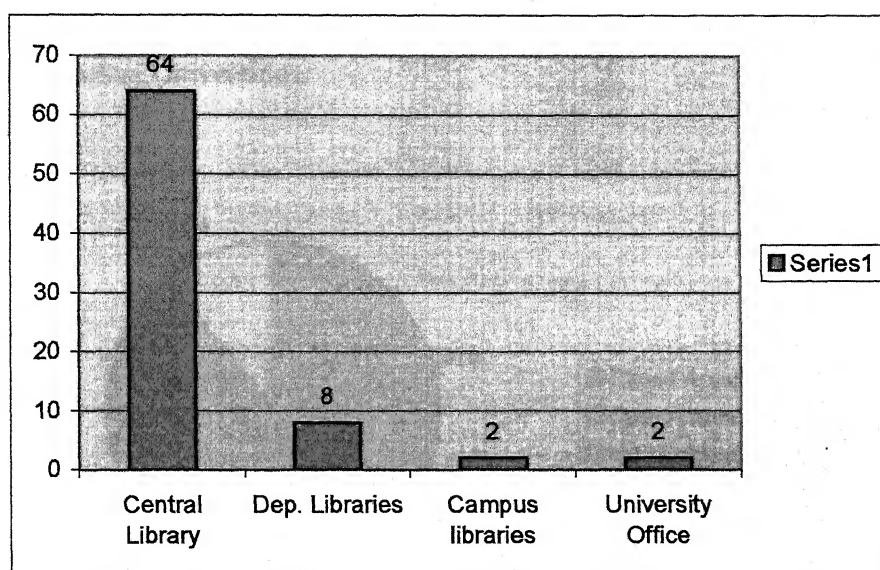


Figure 3.3 - Archiving of Ph D Theses collections

Figure 3.3 shows that 64 Universities (98%) are archiving Ph D Theses in Central Libraries, only 8 (12%) archive them in Departmental Libraries and only 2 (3%) archive them in campus libraries. This practice underlines that researchers are more dependent to Central Libraries in most Universities for accessing Theses collection. It is also understood that accessing the doctoral theses from the same University becomes difficult, especially for the Universities with Regional or Multi Campuses. From Figure 3.2 and 3.3, it is very clear that Distance will be an obstacle in accessing Theses collection, in most of the Universities.

2.1.4 Access policy for Ph D theses

Among the 65 survey participants, 31 Universities (47%) are providing open access, 27 (42%) Universities are providing closed access and 7 (11 %) Universities are providing access based on the user category [See Figure 3.4]. It is a matter of happiness that no Libraries totally restricted access to this valuable collection in Indian Universities.

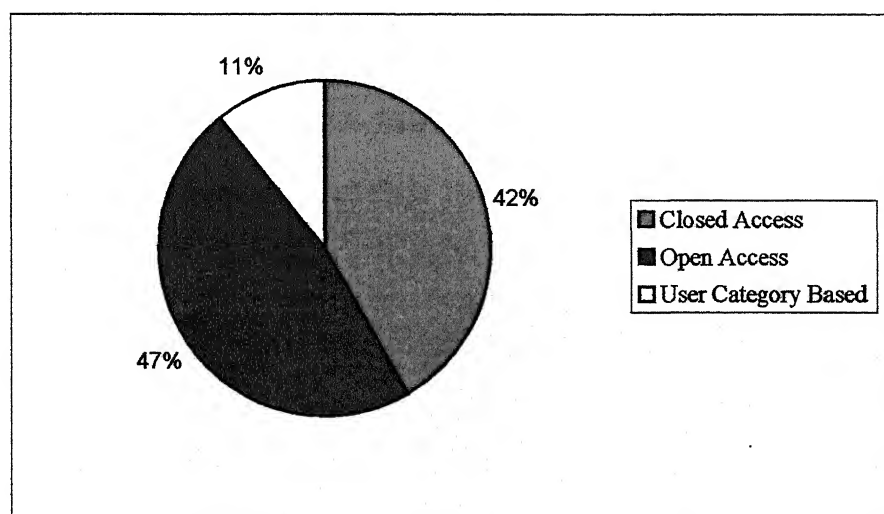


Figure 3.4 - Access policy for Ph D theses

2.1.5 User Based Access policy

All Universities participated in the survey provide access to Research Scholars (100%) and 63 Universities provide access to Research Faculty. The problem identified from the policy analysis provided in Figure 3.5 is that, only 29 (44%) Universities provide access to Non-Members, which included Research students from other Universities. In this case, accessing Ph D Theses from other Universities becomes an issue in India.

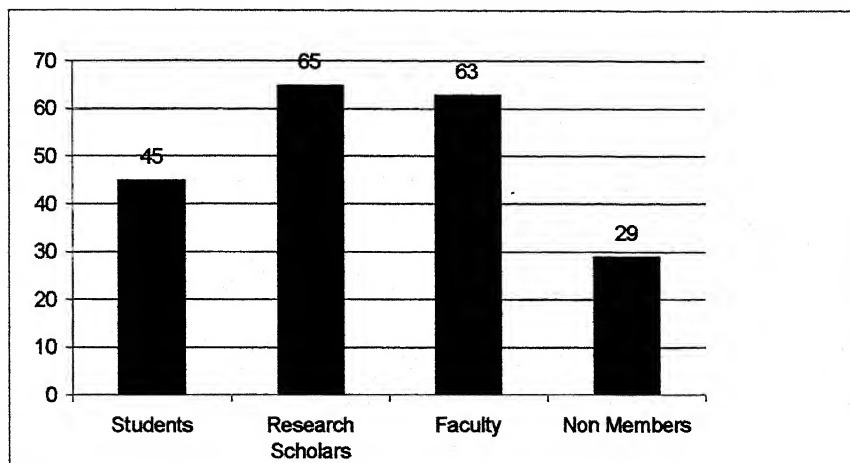


Figure 3.5 - User Based Access policy

2.1.6 Technical Processing of Ph D Theses

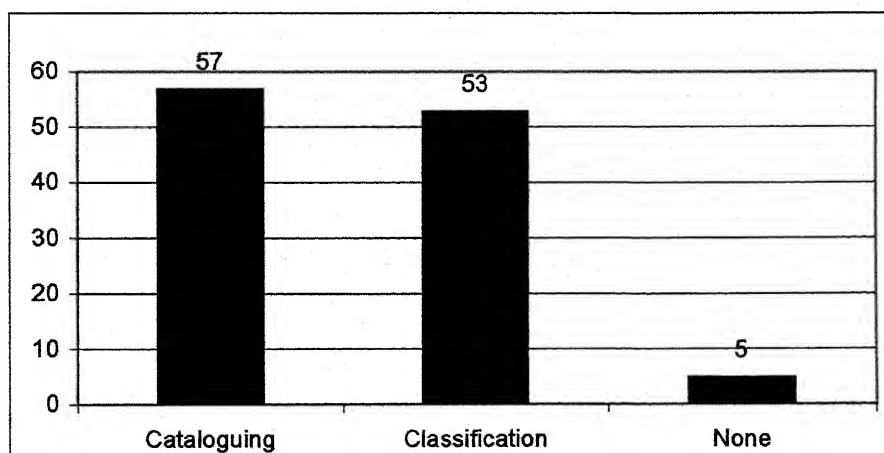


Figure 3.6 – Technical Processing of Ph D Theses

Technical processing and maintenance help in locating the Thesis from a collection easily and it is found that 57 Libraries (88%) catalogue and 53 Libraries (82%) classify the Ph D Theses. Figure 3.6 shows that most of the Libraries keep well-maintained Theses collection and locating a particular thesis from the collection is easy.

2.1.7 Library Services Based on Ph. D. Collection

As shown in Figure 3.7, only 11 Libraries (17%) provide Inter Library Loan services, 21 (32%) provide Photocopying, 12 (18%) provide only consultation services and 19 (29%) provide Index publication or Bibliography etc based on Ph D Theses collection. There are 2 Libraries (3%) who do not provide any service and 10 Libraries have not responded to this question. The unavailability of Inter Library Loan and Photo copying services in most of the Libraries prevent the access to Ph D Theses by users from other Universities.

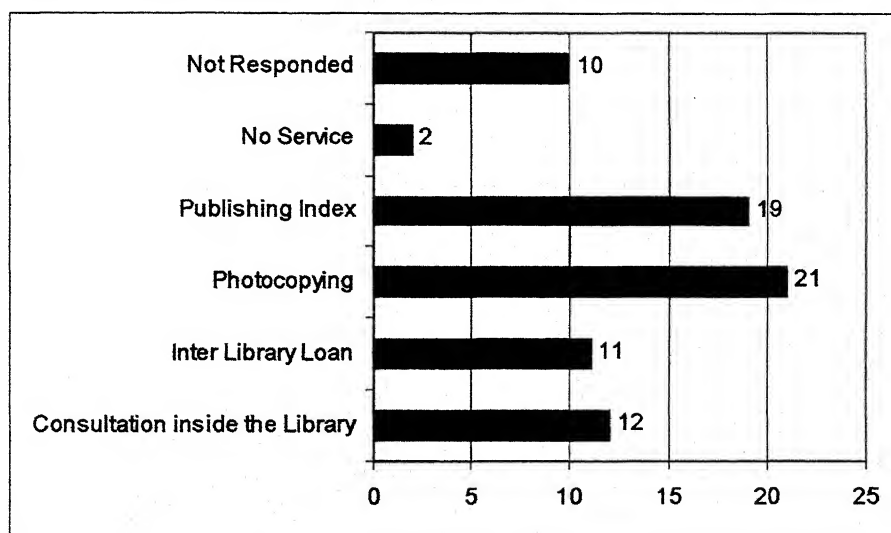


Figure 3.7 - Library Services Based on Ph D Collection

2.1.8 Obstacles in accessing Ph D Theses

Out of 65 respondents, 53 Librarians (82%) said that there are no obstacles in accessing Ph D Theses in their Libraries, where 7 Librarians (9%) identified Closed Access and another 7 (9%) identified Unavailability are the Obstacles in their Libraries. From Figure 3.8, it is clear that most of the Librarians are in opinion that the access to Theses collection from their own

Libraries are free from obstacles, but from the analysis of earlier figures shows that there are obstacles in accessing Theses of other Libraries.

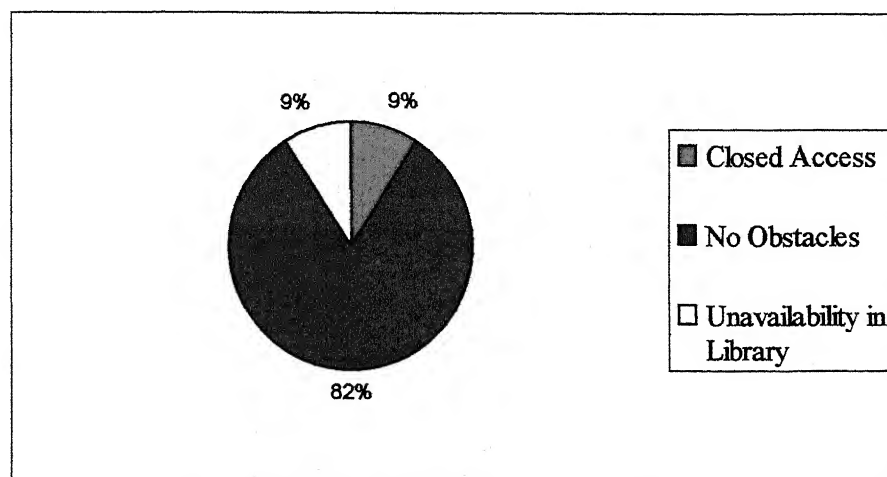


Figure 3.8 - Obstacles in accessing Ph D Theses

2.1.9 Importance of Ph D Theses in furthering doctoral research

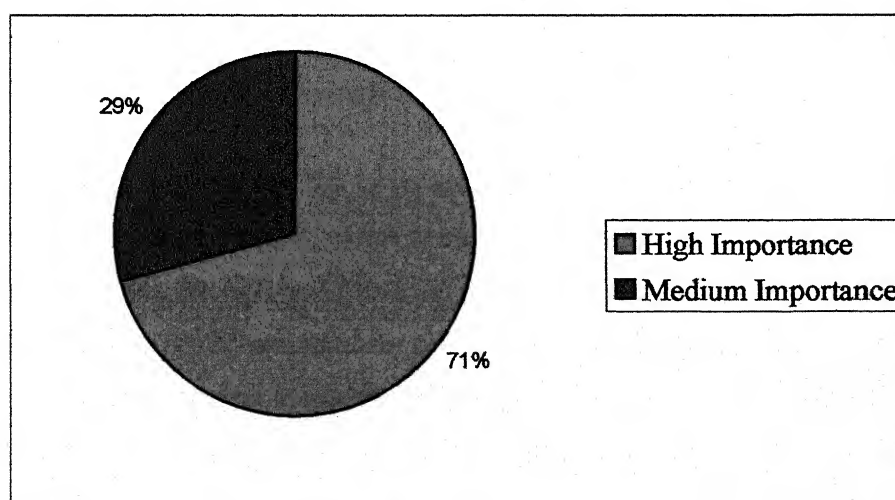


Figure 3.9 – Importance of Ph D Theses

Figure 3.9 shows how Librarians rate their Ph D Theses collection, as a source for furthering University research. The value of information containing in these sources is underlined by 46 Librarians (71%), who have rated their collection with High Importance. Only 19 Librarians (29%) rated it with Medium Importance.

2.1.10 Coverage of Ph D Award in AIU University News

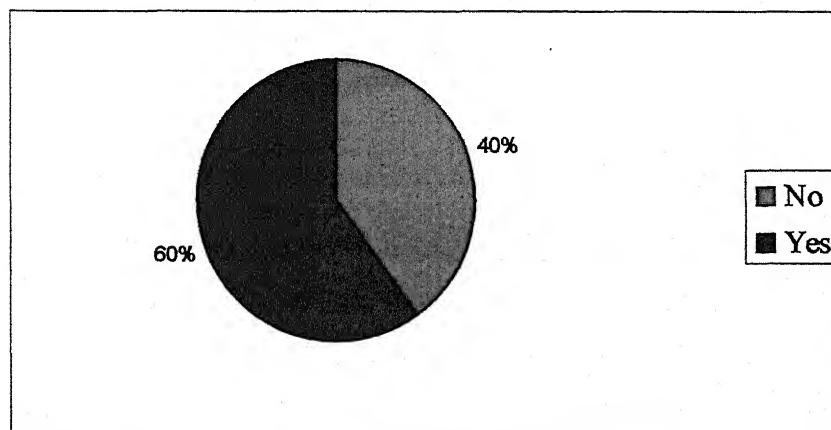


Figure 3.10 - Coverage of Ph D Award in AIU University News

Figure 3.10 shows the coverage of the Ph D Awarding in University News published by AIU, which is only available tool in India publishes the Ph D awards through its "Theses of the Month" Column regularly. Only 39 Universities (60%) are regularly covered in it and 26 Universities (40%) are not covered in this quarterly publication. This shows that details of a substantial number of Ph Ds are not being disseminated due to a non-availability of policies and mechanisms to intimate the Ph D awards to the concerned national level agencies like AIU or UGC_INFLIBNET Centre.

2.1.11 Collection of Other Universities' Theses

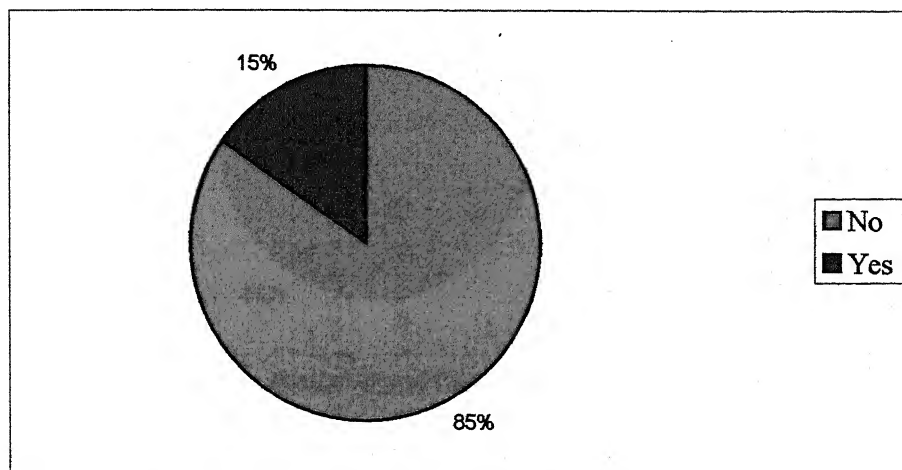


Figure 3.11 - Collection of Other Universities' Theses

Very few Libraries, i.e., 10 Libraries (15%) have a collection of Ph Ds submitted to other Universities, even though they don't have the entire collection. The unavailability of other Universities' Ph D Theses in 55 (85%) of Libraries as shown in Figure 3.11 is another obstacle in accessing the Theses Literature.

2.1.12 Availability of Computerised Database of Theses

Out of 65 Libraries, 53 (82%) have already created a computerized Database of their Ph D Theses collection, where 12 (18%) have not done so far. Wide availability of Bibliographic database as shown in Figure 3.12 will definitely create a tendency to shift over to full-text data base and ETDs.

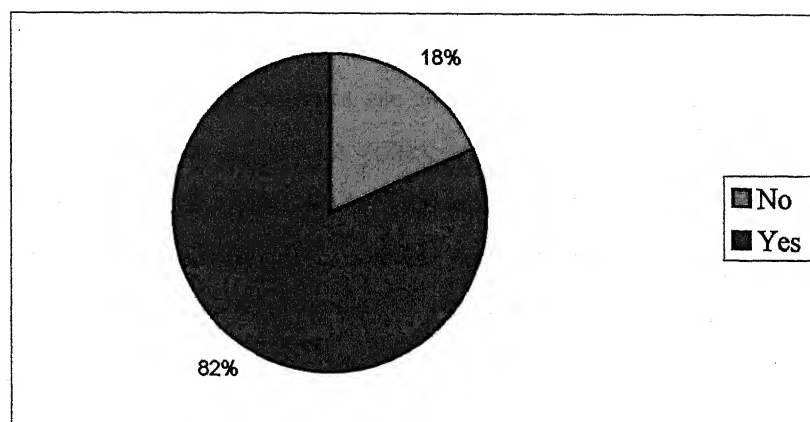


Figure 3.12 - Availability of Computerised Database of Theses

2.1.13 Awareness about the concept of ETDs

Figure 3.12 shows that 56 Librarians (86%) are aware and 9 Librarians (14%) are not aware about the concept of ETDs. It is important to notice that Librarians in India are aware about latest developments like ETDs, and it is because of the wide availability of Internet and Electronic resources, which provides up to date information faster than ever before.

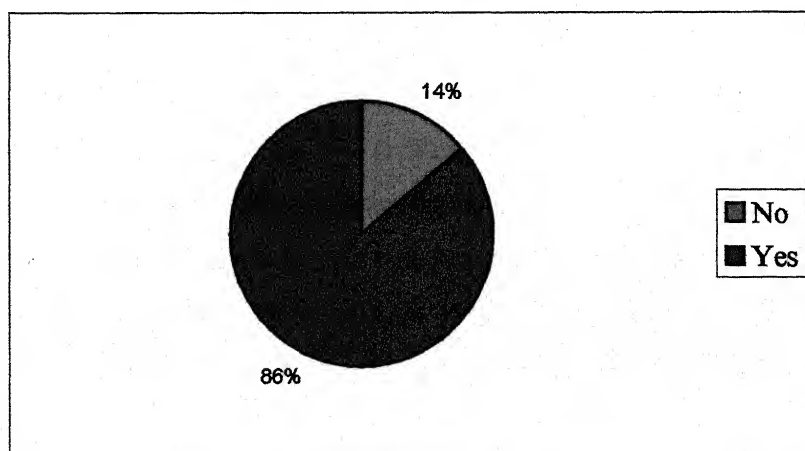


Figure 3.13 - Awareness about the concept of ETDs

2.1.14 Availability of a Policy to collect e-format

Even though 86% of Librarians are aware about ETD Initiatives, only 22 Universities (34%) have adopted a policy to collect e-format of theses along with the submission of print copies. According to Figure 3.14, it has to be implemented in 43 Libraries (66%) and it is sure that they also have to adopt the policy in par with the emerging e-culture in Indian academic arena.

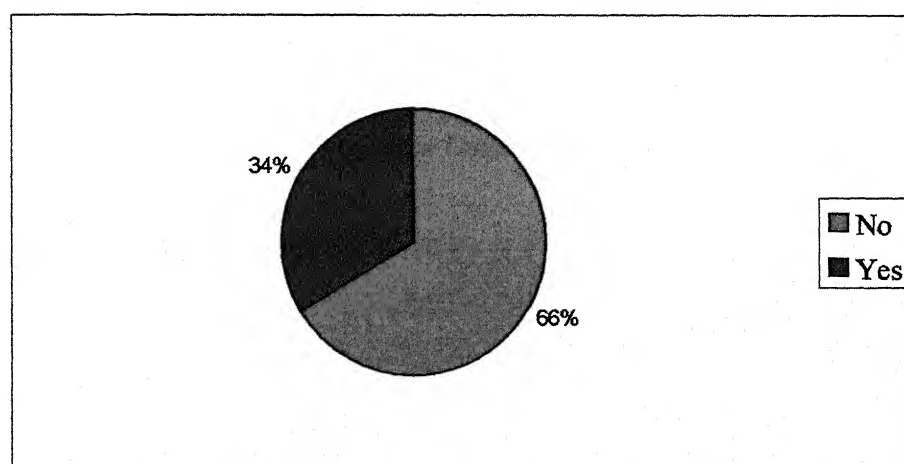


Figure 3.14 - Availability of a Policy to collect e-format

2.1.15 Support to Online Access of Ph D Theses

Figure 3.15 reveals that 34 Librarians (52%) are still not supporting the idea of online access to the Ph D Theses and 31 Librarians (48%) are strongly supporting the idea. The confusions created by the fetus nature of ETDs and the gap in national level policies and frame works in this direction may be the reasons for their non-supportiveness. But it is sure that online access will be the ideal solution, which will be supported by all Librarians in near future.

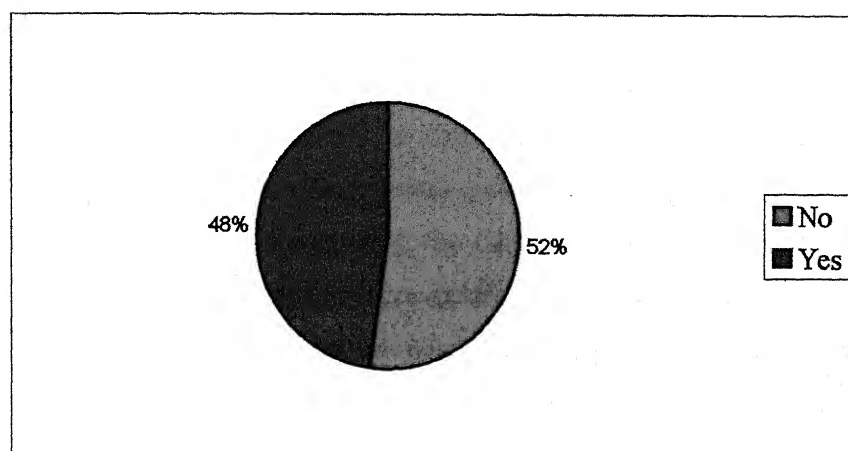


Figure 3.15 - Support to Online Access of Ph D Theses

2.1.16 Online Access Policy of Ph D Theses

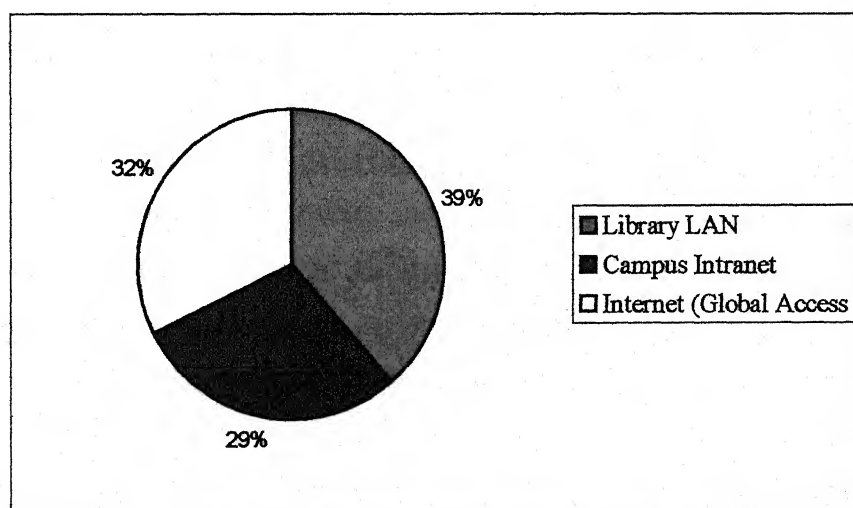


Figure 3.16 - Online Access Policy of Ph D Theses

Figur

Analysis in Figure 3.16 shows that out of 31 Librarians supported Online Access, 12 (39%) suggested the access can be provided only on Library LAN, 9 (29%) suggested Campus Intranet and only 10 (32%) are suggesting

for Internet (Global Access), which is the only solution to avoid current difficulties in accessing Ph D Theses of Indian Universities. If we consider the total number of participants in this survey, only 10 out of 65 (15%) supporting Global access to their theses collection. If we analyse the existing ETD systems at International level, the Global access is provided by only 50% of the Institutions where others have restricted the access only to their campuses. Open Access Initiatives are getting momentum in India and it is therefore can be predicted that Global access will emerge as the choice for avoiding the obstacles in physical access.

2.1.17 Obstacles in Creating ETD System

Figure 3.17 shows the obstacles identified by Librarians in the creation of ETD System in India. Out of 65, 33 Librarians (51%) identified Copyright Problems are the main obstacles to create ETD Systems. 25 (37%) identified Infrastructure Problems, 23 (35%) identified Plagiarism, 20 (31%) identified Lack of Funding, 15 (23%) identified Lack of Expertise or Lack of Administrative supports as the obstacles. Few of them identified Lack of Supports from Students and Faculty and a very few declared that there are no obstacles in creating ETDs in their Universities. The above mentioned problems need to be resolved by Governmental agencies like UGC, ICAR, ICMR, AICTE etc by having common accepted policies and frame work, sufficient financial support and spreading the benefits of ETDs among academic and researcher community. There may be obstacles which has to be addressed at Institutional level or regional level.

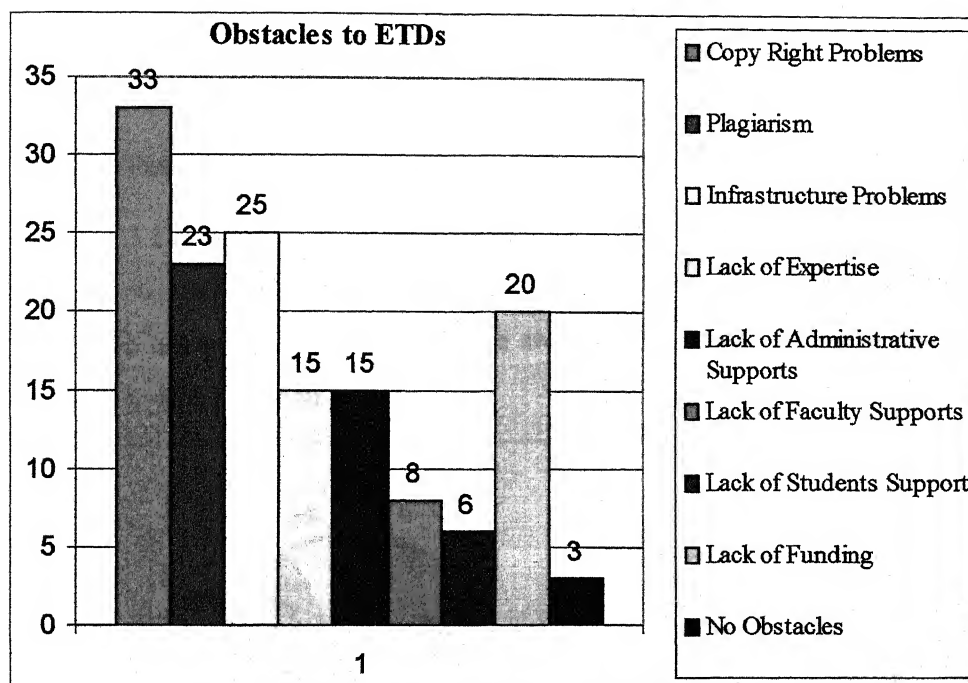


Figure 3.17 - Obstacles in Creating ETD System

2.1.18 Benefits of ETD System

Benefits	Responses
Enhanced image in Information Technology advancements	30
Increased visibility of University Research	53
Avoiding Duplication in Research	53
Expertise in building Digital Libraries/Institutional Repositories	33
Promoting Electronic Publishing	28
Libraries role in content development	36
Not Responded	4

Table 3.1 – Benefits of ETDs

It shows that, except 4 Librarians, all are well aware about the benefits of ETDs given in the Table 3.1, which are also widely agreed by ETD

communities at International level. The greater awareness about the benefits will definitely help in initiating this new idea in Indian Universities.

2.1.19 Policy in Hosting ETD in other Digital Archives

Figure 3.18 shows that only 12 Universities (18%) adopted a policy to host their own ETDs in another digital archives, where the majority of 48 (74%) have not adopted a policy. There are 5 Universities, who have not responded to this question.

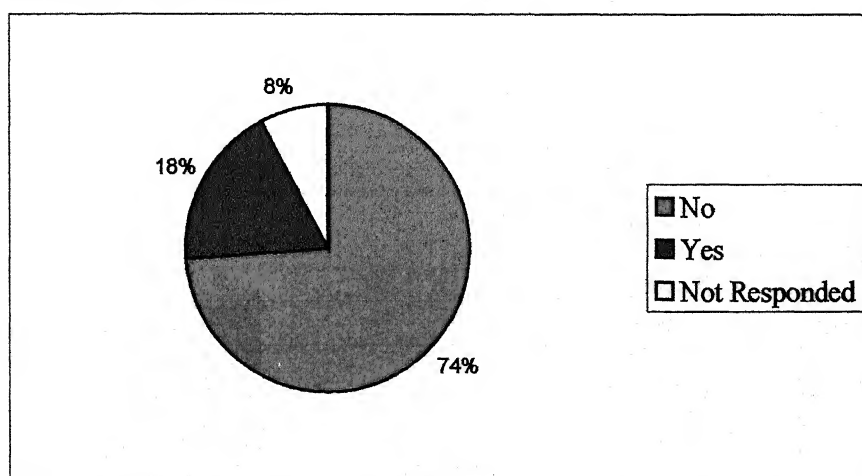


Figure 3.18 - Policy in Hosting ETD in other Digital Archives

If we compare the statistics, only 15% of Librarians supporting access to ETDs outside campus Intranet and only 18% Universities have a policy to provide their ETDs to any national level agency to host it for the benefit of academic and research community. These two are the important issues, which need to be resolved through national level policies and frame works with mandatory stipulations from Governmental agencies.

2.1.20 Selection of a Digital Archive

Out of 12 Universities who have a policy to host their ETDs in another Digital Archives, 11 (92%) Librarians are willing to provide its ETDs to a Digital Archive created by any UGC designated national Agency and 9 (75%) will select any University designated by UGC, as per the Figure 3.19. There are 5 Universities (42%) are not responded to this question. Few are either ready to provide its ETDs to Private Agencies or not ready to provide to any one of the suggested bodies. This highlights the role of UGC to be played in this important area with new stipulations and regulations.

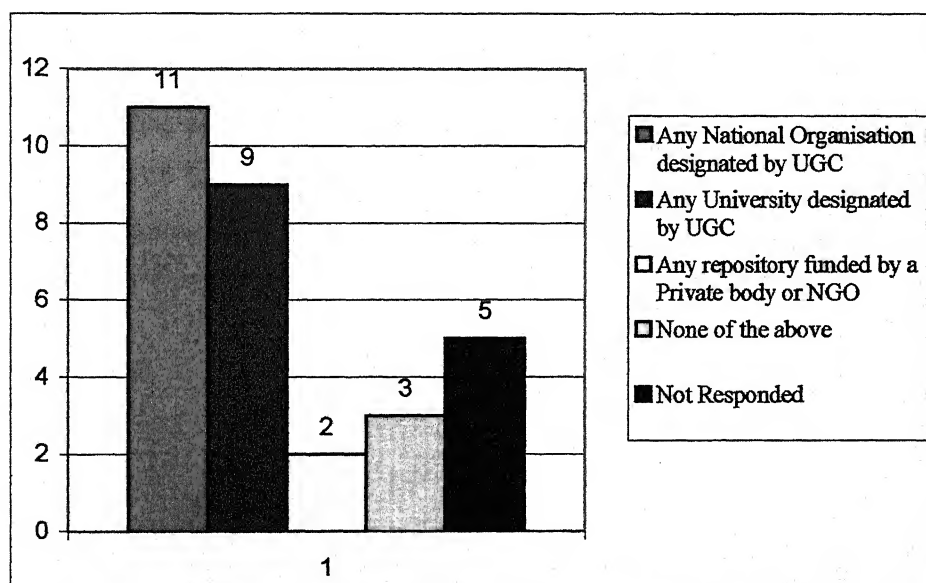


Figure 3.19 - Selection of a Digital Archive

2.1.21 Awareness about INFLIBNET Theses Database

Figure 3.20 shows that 62 Librarians (95%) are aware and 3 of them (5%) are not all aware about the INFLIBNET Theses Database. It shows the popularity of this database among the Librarians.

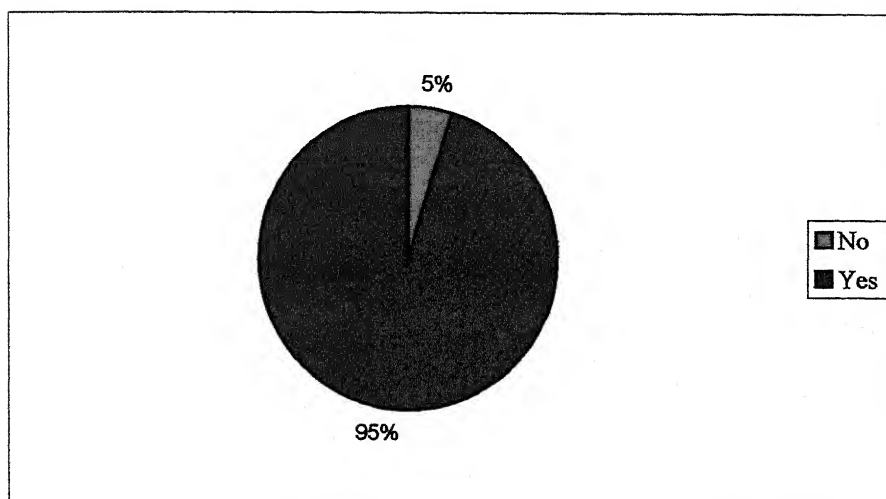


Figure 3.20 – Awareness about INFLIBNET Theses Database

2.1.22 Contribution to INFLIBNET Theses Database

Regarding contribution of Ph D Theses data to INFLIBNET Figure 3.21 shows that 48 Librarians (74%) are regularly contributing and 17 (26%) are not contributing.

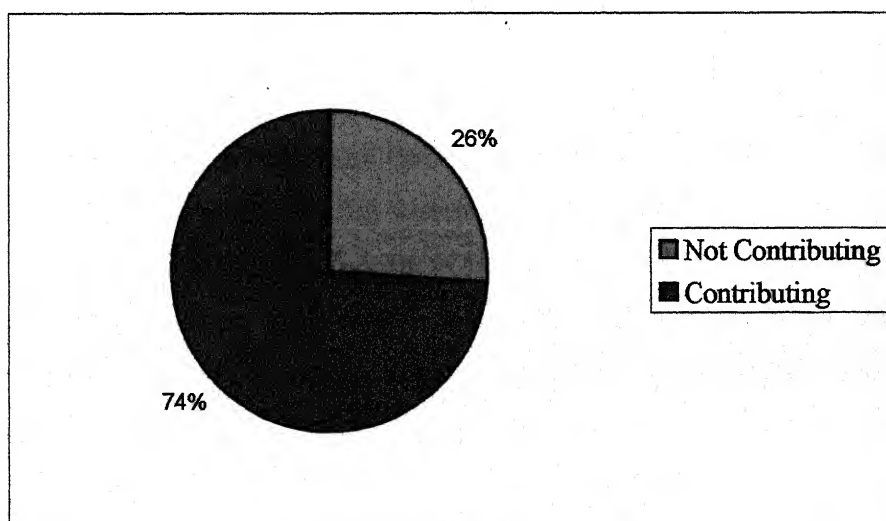


Figure 3.21 – Contribution to INFLIBNET Theses Database

Most of the participants are members of INFLIBNET and they have a mandate to supply the data regularly. Necessary steps have to be taken by INFLIBNET to increase the coverage of its databases by including all Universities under its umbrella.

2.1.23 Present Availability of ETD System

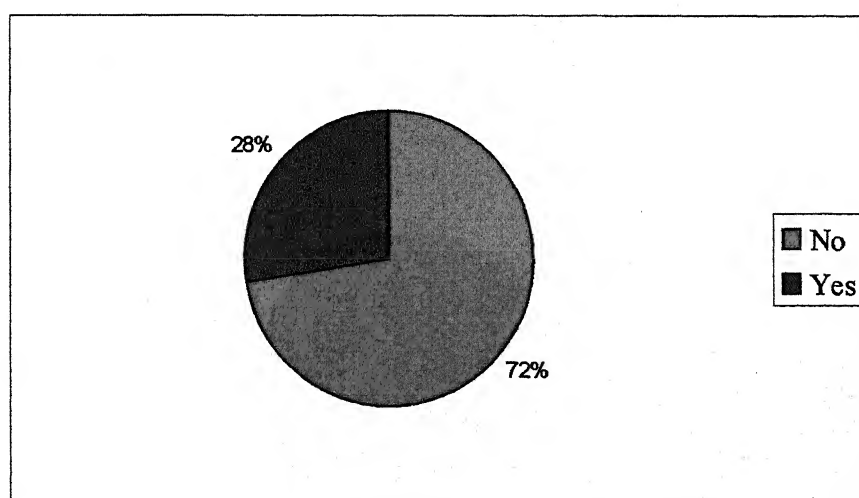


Figure 3.22 – Present Availability of ETD System

It is a matter of happiness that 18 Indian University Libraries (28%) already started creation of ETD Systems, but the majority of 47 (72%) still have not started. The unavailability of Infrastructure and technical expertise are the reasons for the gap shown in Figure 3.22, and it is sure that it will be vanished along with the emergence and full operation of projects like UGC Infonet.

2.1.24 Future Plans for ETD System

From Figure 3.23 it is clear that the majority of 30 Librarians (61%) are planning to create ETD System by the year 2005 and 19 (39%) do not have immediate plans to go for ETD System. It is a matter of fact that the wide awareness of ETDs and its benefits among Librarians and the ever demanding electronic culture in Universities accelerate them to go digital in terms of resources and services.

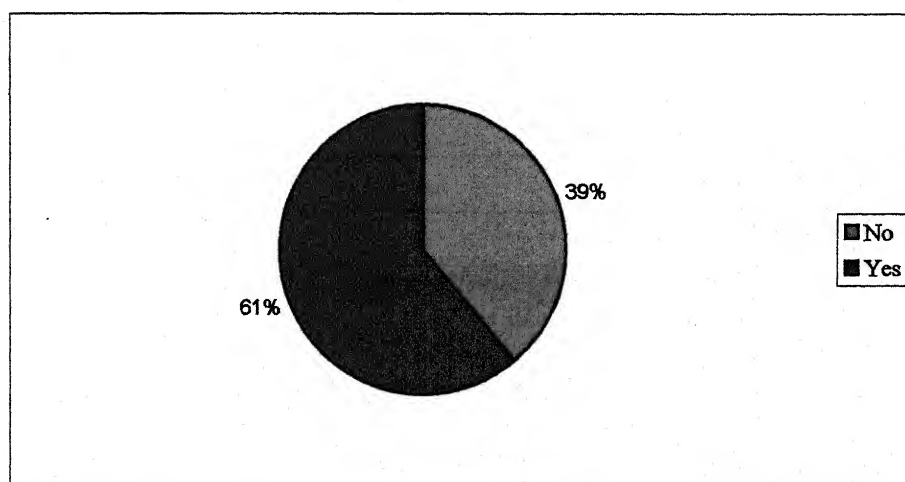


Figure 3.23 – Future Plans for ETD System

2.1.25 Supports Needed for ETD System

The supports required for ongoing and upcoming ETD Projects in Indian Universities are grouped in Table 3.2. Out of the 65 respondents, 36 Librarians (19%) demand sufficient policies from Universities, 32 (17%) demand Infrastructure support, 28 (15%) demand Policies from Government bodies like UGC and 27 (15%) demand for Technical expertise. Few of them also demand supports from academics and financial support, where 12

Librarians said they do not require any kind of supports. These Universities have sufficient infrastructure, funding and technical expertise, which are in fore front of digital revolution.

Supports Needed	Responses
Governmental Policies (UGC etc)	28
University Policies	36
Infrastructure Support	32
Technical Expertise	27
Support from Academics	17
Financial Supports	19
No Support Required	12
Not Responded	3

Table 2.2 - Supports Needed for ETD System

2.2 UNIVERSITY RESEARCH GUIDES

Separate survey has done with 88 Ph D Research Guides from various disciplines, covering 27 Universities (See Annexure VI at Page 154) across the country. A detailed analysis of their response is given below in tabular and graphical form

2.2.1 Advise to Consult Ph D Theses

Figure 3.24 shows how Research Guides are treating the Ph D Theses as an information source. Out of 88 Guides, 87 (99%) are advising their research scholars to consult the Ph D Theses collection for their study, where only one guide never advised the researchers to do so. This shows the high

value of information contains in Ph D Theses and its importance in identifying the problems, carrying out literature search and further research, in respective area.

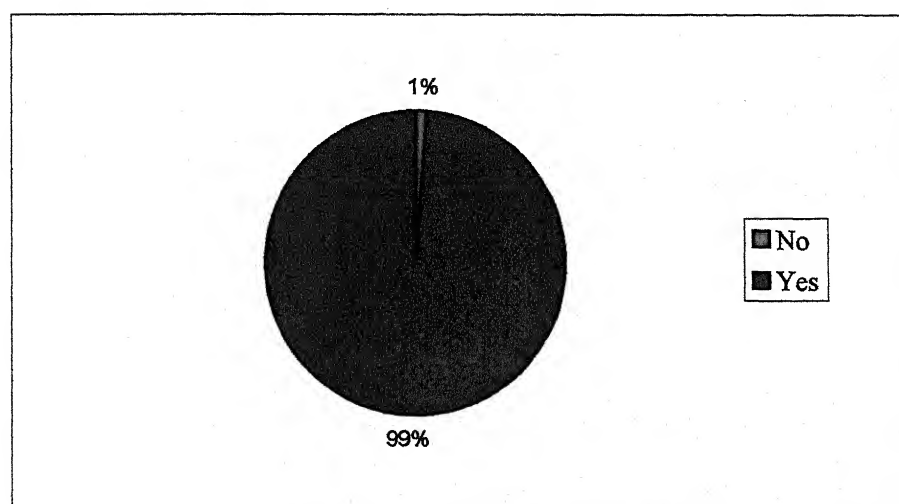


Figure 3.24 – Advise to Consult Ph D Theses

2.2.2 Obstacles in Accessing Ph D Theses

Regarding the present obstacles in accessing Ph D Theses, 36 Guides (41%) identified Distance and 28 (32%) identified the non-availability of a mechanism to get Ph D Theses (See Figure 3.25). Closed Access is identified by 25 (28%), 22 (25%) identified the Unavailability and 18 (20%) could not identify any obstacles in accessing theses. A very few of 5 (5%) identified Language as a problem to access the theses literature. The Distance and Non-availability are mostly related to Theses from other Universities, which can be solved through ETDs.

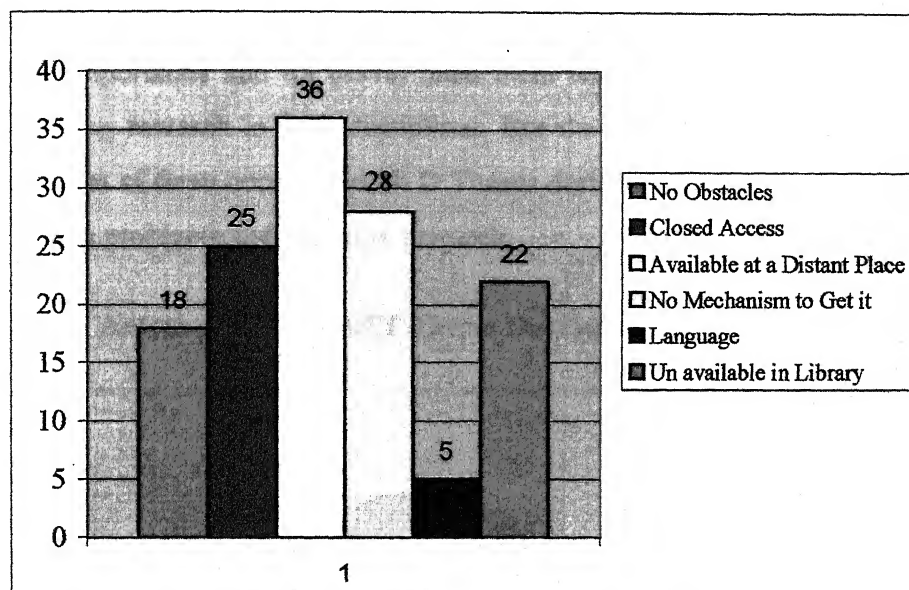


Figure 3.25 –Obstacles in Accessing Ph D Theses

2.2.3 Importance of Ph D Theses in Furthering Research

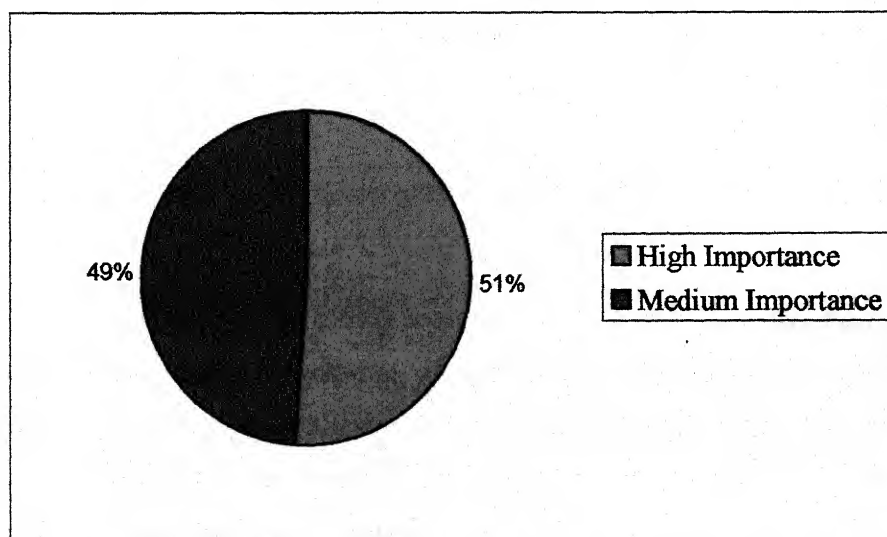


Figure 3.26 – Importance of Ph D Theses in Furthering Research

Figure 3.26 shows that 45 Guides (51%) rated the Ph D Theses with High Importance and 43 (49%) rated them with Medium Importance, in furthering research in their disciplines. But we should understand the fact that most of them consult the Ph D Theses during the conceptualization of research problems and literature research.

2.2.4 Access of INFLIBNET Theses Database

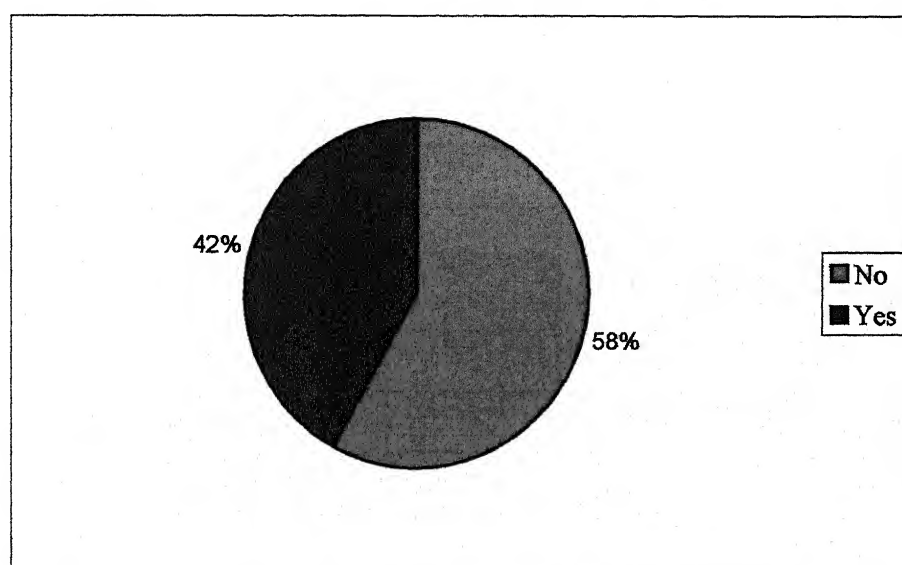


Figure 3.27 – Access of INFLIBNET Theses Database

Out of 88 Guides, 51 (58%) accessed INFLIBNET's Theses database, but 37 (42%) never accessed it, as shown in Figure 3.27. This may be because of less awareness about this database among faculty members or unavailability of 100 percent coverage in terms of Ph Ds awarded. Sufficient steps have to be initiated to address these problems.

2.2.5 Sources Consulting for Avoiding Duplication

Figure 3.28 shows that 66 Guides (75%) consult Journals or Newsletters from their discipline, 31 Guides (35%) consult INFLIBNET Theses Database, 20 (23%) consult AIU University News, 10 (11%) consult AIU Hand Book and 7 (8%) consult other sources during the conceptualization of the research topic to avoid duplication in research topic.

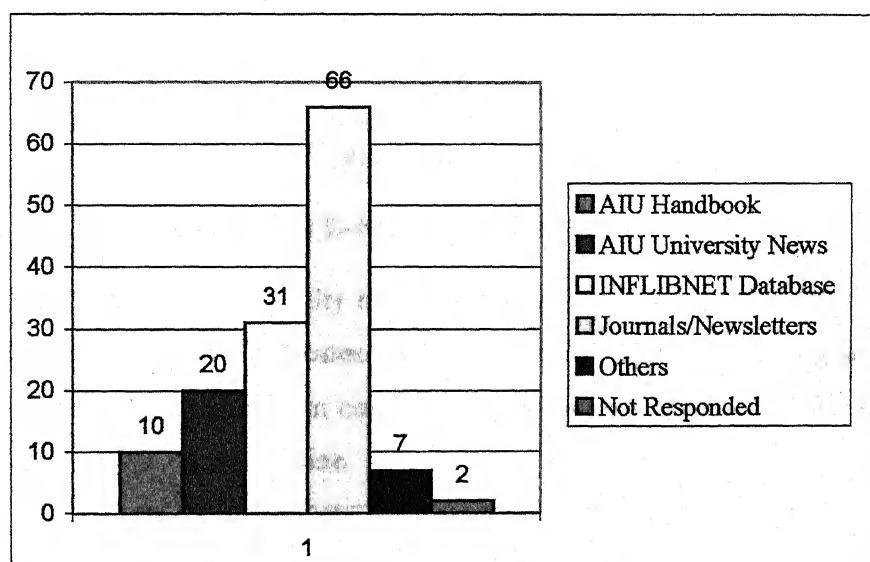


Figure 3.28 – Sources Consulting for Avoiding Duplication

2.2.6 Awareness about ETDs

It is a good sign that 53 Guides (60%) are aware about ETD initiatives as shown in Figure 3.29, but 34 (39%) are still not aware about the concept. This shows that enough awareness programmes are required before initiating ETD programmes in campuses.

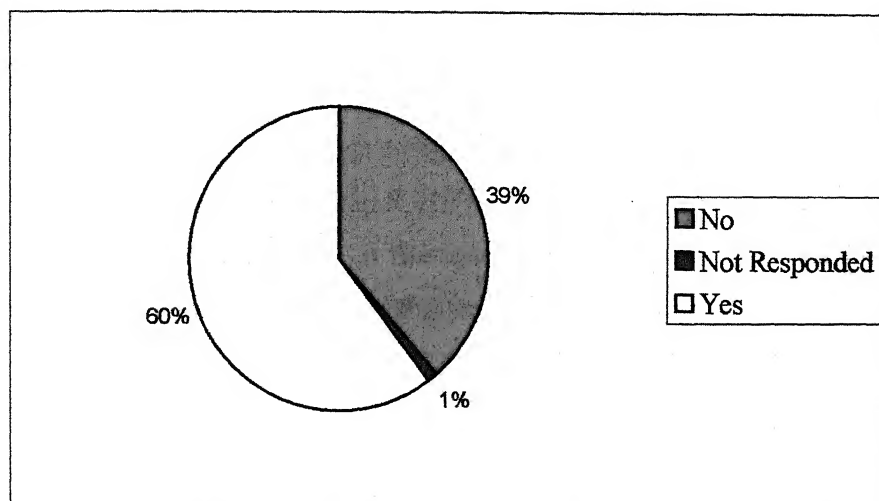


Figure 3.29 – Awareness about ETD Initiatives

2.2.7 Support to Collect E-Format of Ph D Theses

The support from Faculty members towards ETD programme is shown in Figure 3.30, which indicates that 75 Guides (85%) are supporting and 12 (14%) are not supporting in collecting the e-format of their student's Ph D Theses during the submission.

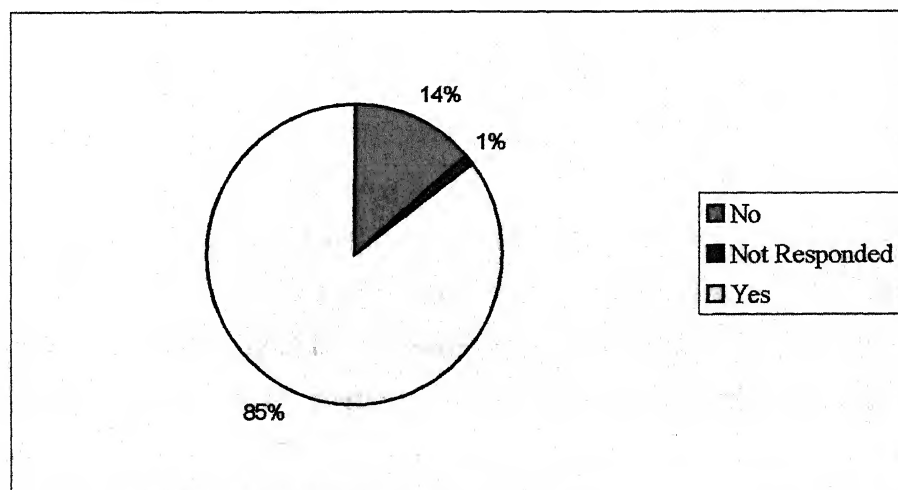


Figure 3.30 – Support to Collect E-Format of Ph D Theses

2.2.8 Support to Provide Online Access to Ph D Theses

Figure 3.31 shows the faculty support in providing online access to their student's Ph D Theses, through a Digital Library. The majority of 78 Guides (89%) are supporting and only 9 (10%) are not supporting online access. One Guide did not respond to this question. This shows that the fear of academic resistance towards ETDs is not an issue in India.

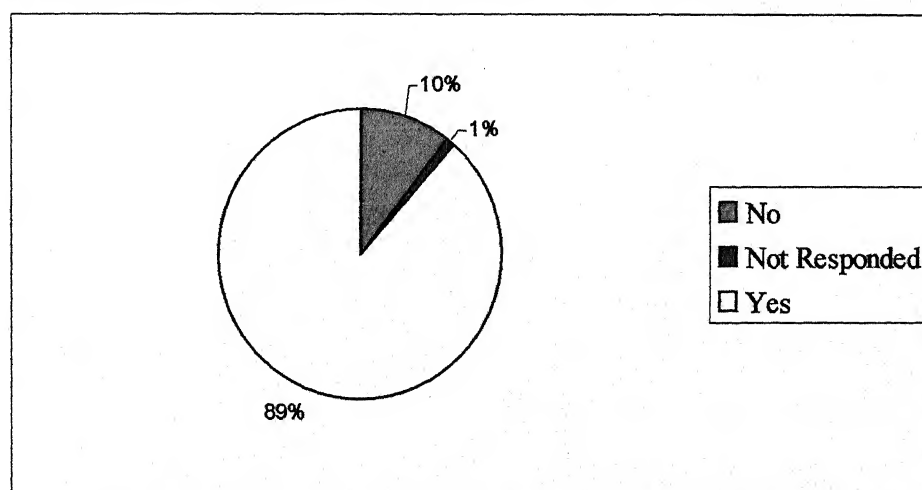


Figure 3.31 – Support to Provide Online Access to Ph D Theses

2.2.9 Online Access Policy to Ph D Theses

Regarding the access policy, out of 78 Guides supporting online access, 50 Guides (64%) are supporting for Global access over Internet, 19 (24%) are supporting access on Campus Intranet and 9 (12%) are supporting access only on Library LAN, to their student's Ph D Theses. Figure 3.32 clearly indicates that majority of faculty members supports Global access to Indian Theses literature, and the negative opinions will get vanished along with the emergence of digital information environment in Indian campuses when they are fully covered under UGC Infonet programme.

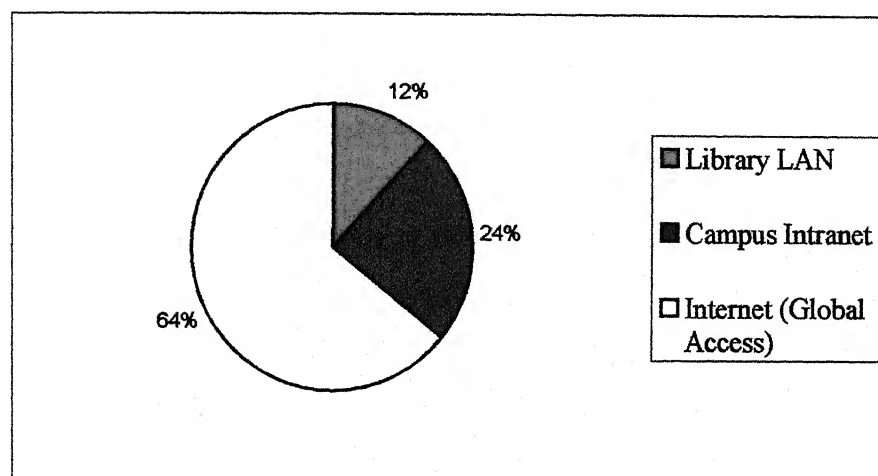


Figure 3.32 – Online Access Policy to Ph D Theses

2.2.11 Reasons to avoid Online Access to Ph D Theses

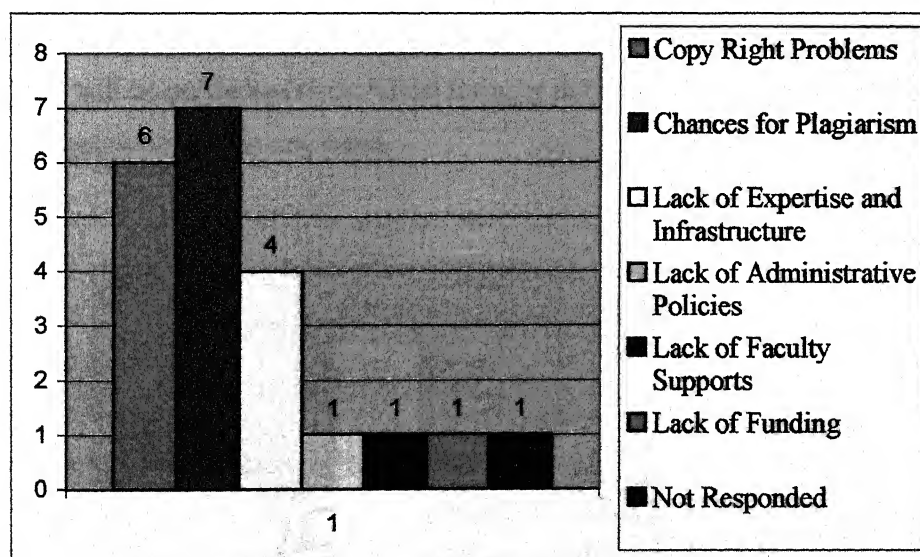


Figure 3.33 – Reasons to avoid Online Access to Ph D Theses

Out of 9 Guides, who are not supporting online access, 7 (78%) identified Chances of Plagiarism, 6 (75%) identified Copyright issues and 4 (50%) identified lack of expertise as the reasons to avoid online access to their students

Ph D Theses, as shown in Figure 3.33. Lack of Faculty support, Lack of funding and Lack of Administrative supports are also identified by few Guides and one guide did not respond to this question.

2.2.12 Publication Practices of Ph D Research

The analysis in Figure 3.34 shows that Ph D Research results of 69 Guides (78%) are published in Journals, 65 (74%) are published in Conference Proceedings, 10 (11%) as book and 3 (3%) are not published anywhere. 11 Guides (13%) are not responded to this question. This shows that Indian Ph D research are being published in any other forms, but the time gap in traditional publication and the availability of those publications in Libraries again stand as an obstacle in disseminating the research outputs. Another observation is that no thesis will be published in its fullest form, or in other words, part of the thesis may not get published in any form.

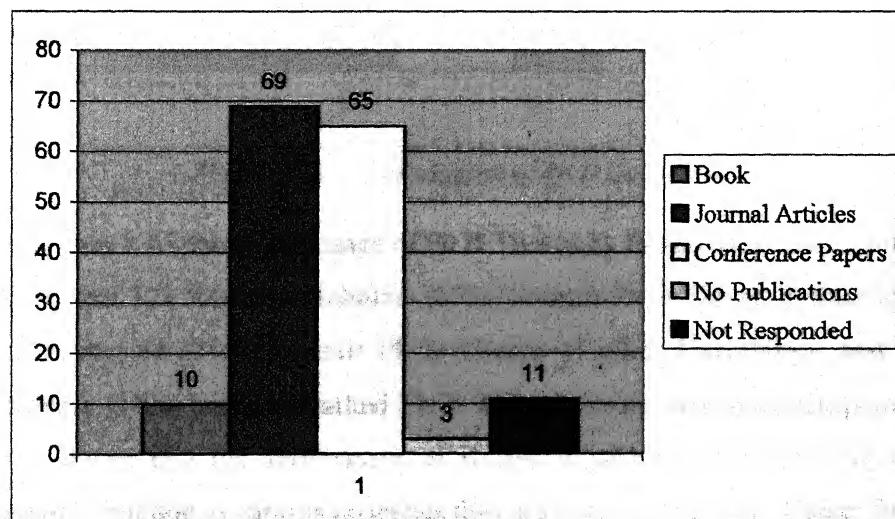


Figure 3.34 – Publication Practices of Ph D Research

2.3 University Research Scholars

In the next survey through separate Questionnaire, 173 Ph D Research Scholars participated from various disciplines, covering 27 Universities across the country (See Annexure VI at Page 154). A detailed analysis of their response in tabular and graphical form is given below.

2.3.1 Consultation of Ph D Collection

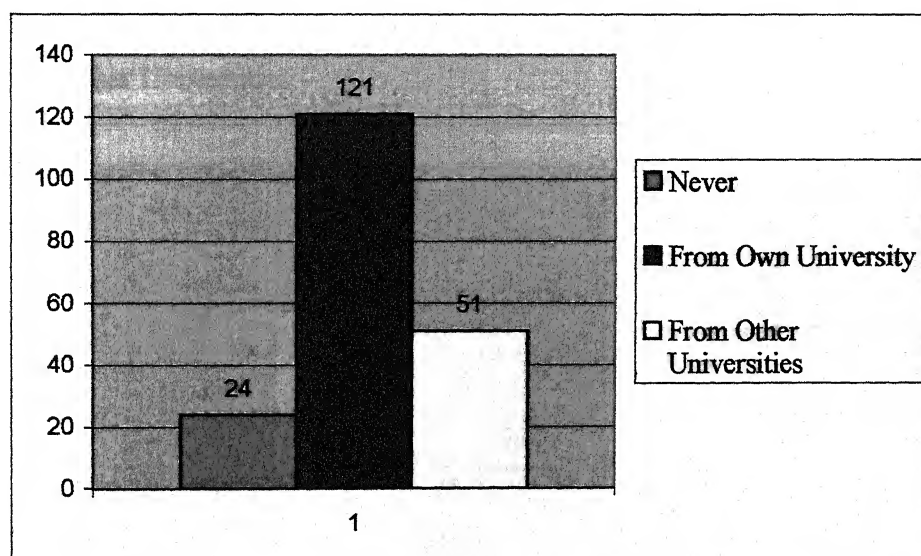


Figure 3.35 – Consultation of Ph D Collection

Figure 3.35 shows the usage of Ph D Theses by Research scholars, and it shows that 121 Research Scholars (67%) consult Ph D Theses in their own University, 51 (30%) consult Ph D Theses of other Universities and 24 Scholars (14%) never consulted Ph D Theses during their research period. This shows that the seriousness of Research scholars in consulting old research, but due to various obstacles they are not able to access Theses from other Universities.

2.3.2 Obstacles in Accessing of Ph D Collection

As obstacles in accessing the Ph D Theses collection, 47 Scholars (28%) identified the Distance, 36 (21%) identified Closed Access, 34 (20%) identified the unavailability of a mechanism to get them, 22 (13%) identified Unavailability and 14 (8%) identified Language in their responses. Even though 58 Scholars (35%) are in opinion that there are no obstacles faced while trying to access the Ph D Collection, Figure 3.36 clearly indicates that Research scholars face various obstacles in accessing Ph D Theses, most from other Universities.

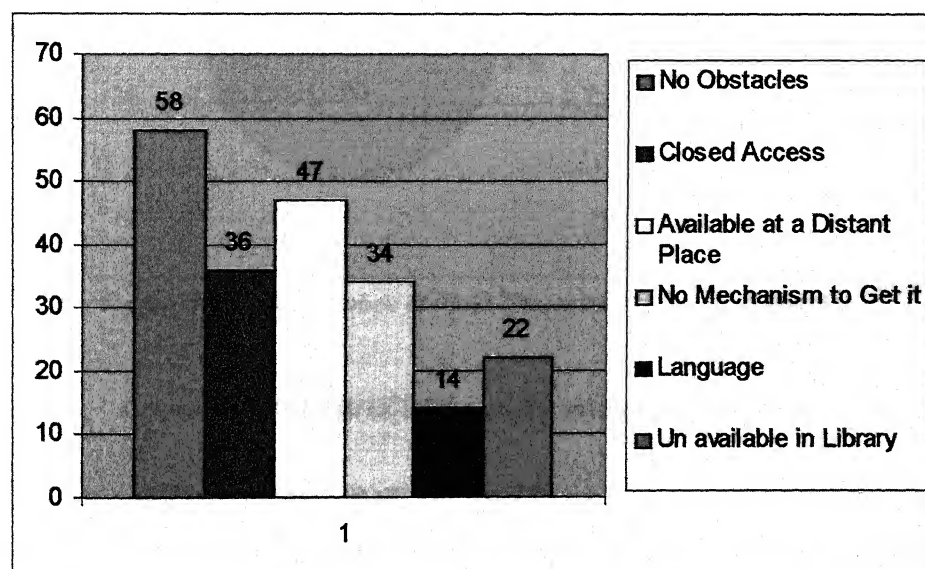


Figure 3.36 – Obstacles in Consulting Ph D Collection

2.3.3 Importance of Ph D Theses in Furthering Research

In Figure 3.37, 99 Scholars (57%) rated Ph D Theses with high importance, 67 (39%) rated with Medium Importance and 6 (3%) said that it does not have any importance in furthering the research. 2 Scholars have not

responded to this question. Further analysis shows that Research scholars from Science and Engineering faculties, especially from Chemical Sciences, rated Ph D Theses with Medium importance or no Importance. The factual and experimental based research style in these faculties can be the reasons or the less usage of Ph D Theses in these disciplines.

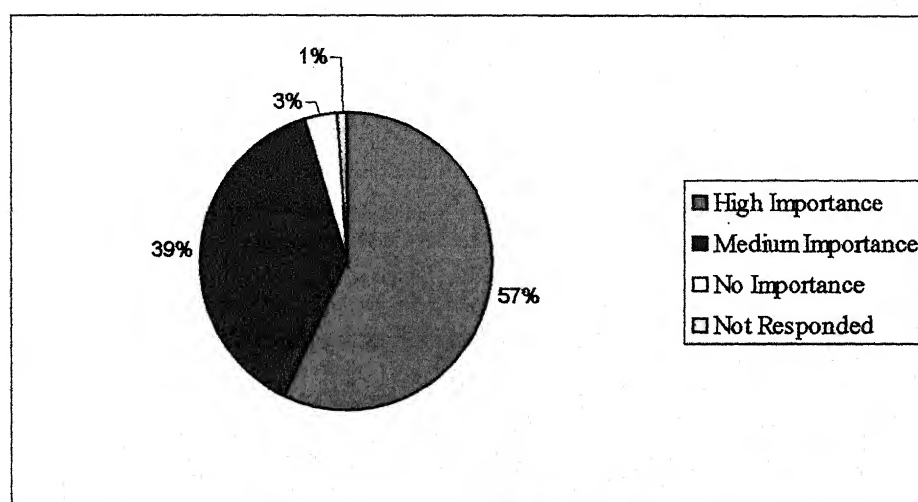


Figure 3.37 – Importance of Ph D Theses in Furthering Research

2.3.4 Access to INFLIBNET Theses Database

The popularity of INFLIBNET Theses Database is shown in Figure 3.38, where 122 Researchers (71%) accessed it and 51 (29%) have not accessed it so far. The facility for online searching of available records through various parameters in one place will be the reasons for its wide popularity, but more initiatives are to be taken for creating more awareness and coverage to this online tool.

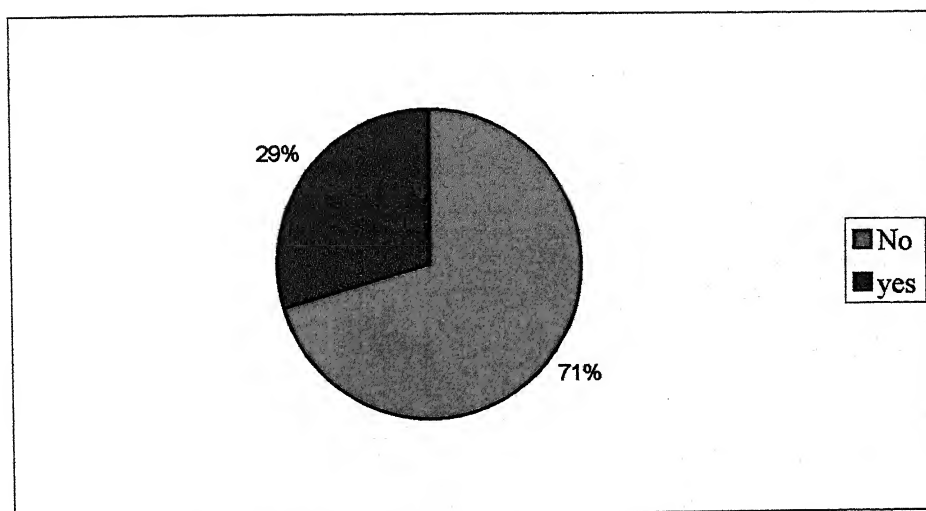


Figure 3.38 – Importance of Ph D Theses in Furthering Research

2.3.5 Sources Referred to Avoid Duplication

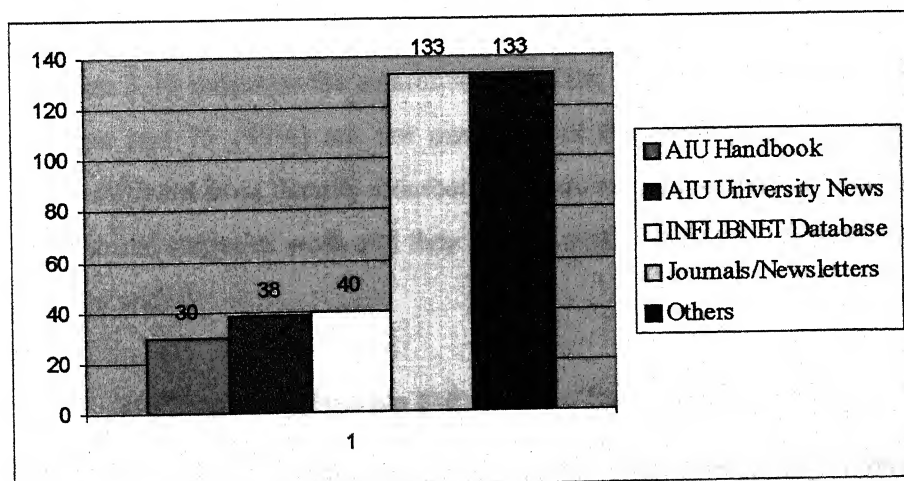


Figure 3.39 – Sources Referred to Avoid Duplication

Figure 3.39 highlights the sources referred by Researchers while conceptualizing the research topic, to avoid duplication in research. Out of 173, 133 Scholars (77%) refer Journals or Newsletters and other sources in

their own discipline, 40 (23%) refer INFLIBNET Theses Database, 38 (22%) refer AIU University News and 30 (17%) refer AIU Handbook.

2.3.6 Awareness about ETD

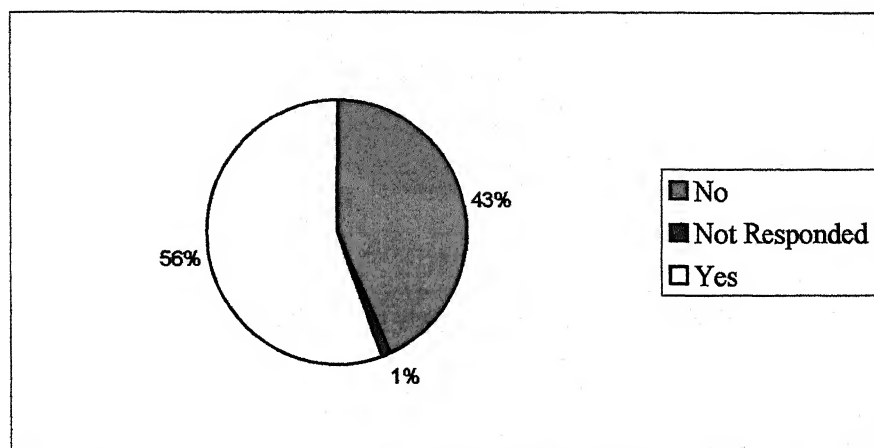


Figure 3.40 – Awareness about ETDs

Figure 3.40 indicates the awareness of ETDs, where 96 Scholars (56%) are aware and 75 (43%) are not aware about this concept. This data is entirely different from Faculty members because most of the Researchers are in their initial stages of work and they are not used to electronic information resources widely.

2.3.6 Willingness to Provide E-Format of Ph D Theses

Out of 173, 148 Scholars (86%) have shown their interest to provide e-format of their Thesis during submission, but a minority of 25 (14%) is still not willing to provide e-format of their theses to the University (See Figure 3.41). This is a good sign and Universities will not face any resistance from Researchers in initiating ETDs in India.

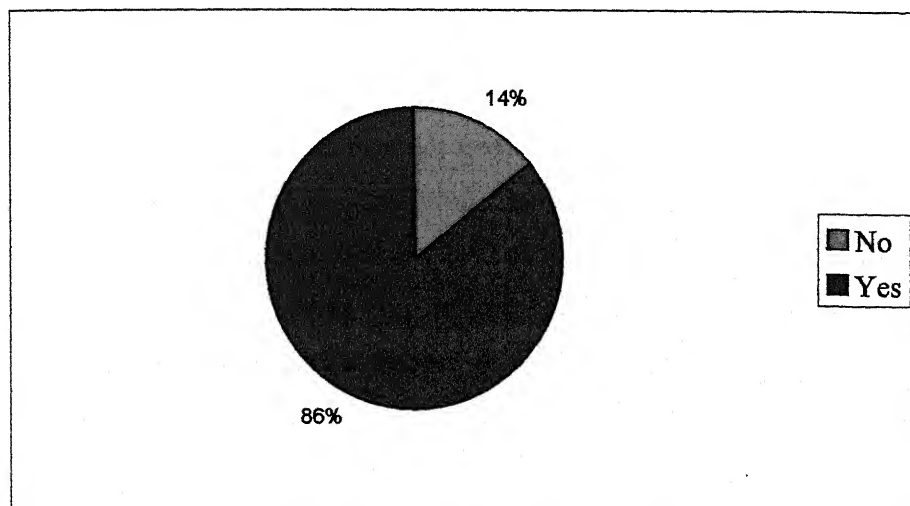


Figure 3.41 – Willingness to Provide E-Format

2.3.7 Support to Online Access to Ph D Theses

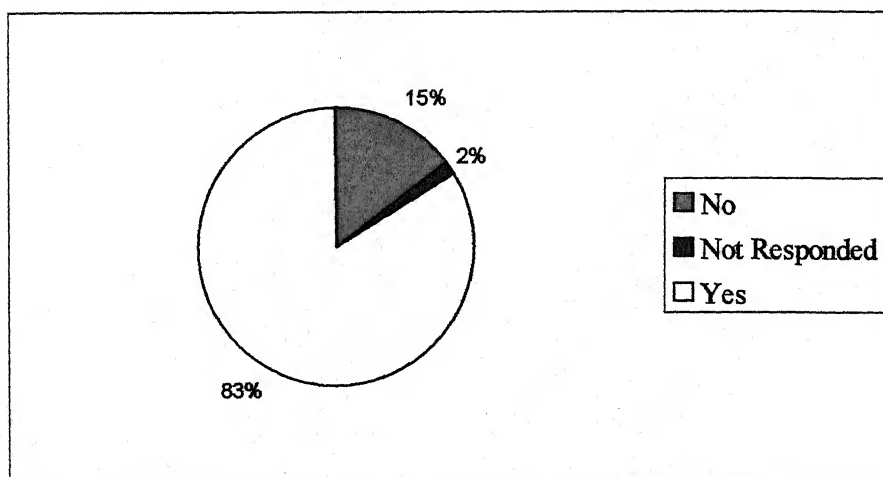


Figure 3.42 – Support for Online Access

Figure 3.42 shows that 144 Research Scholars (83%) are willing to provide online access to their Ph D thesis through a Digital Library, but a minority of 26 (15%) are not willing to do so. 3 Scholars (2%) have not responded to this question.

2.3.8 Online Access Policy for Ph D Theses

Out of 144 Scholars who support online access, 96 Scholars (66%) preferred the Global access through Internet, 27 (19%) preferred access on Library LAN and 21 (15%) preferred Access on Campus Intranet. Figure 3.43 shows that 44% Scholars are still not ready to provide Global Online access to their Theses. They may be ready to provide online access after a time gap, to publish articles, papers or books based on their research. If somebody wants to apply for a patent based on the research, especially in Technology disciplines, the research has to be kept unpublished.

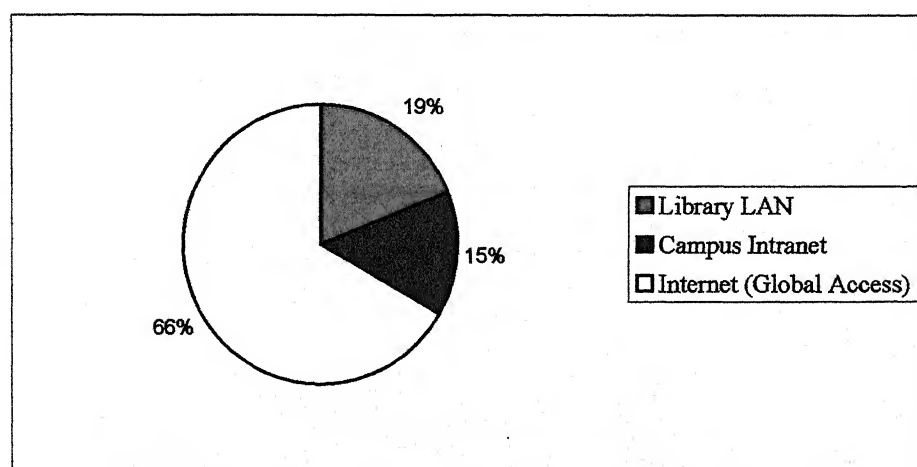


Figure 3.43 – Online Access Policy for Ph D Theses

2.3.9 Reasons to avoid Online Access to Ph D Theses

Out of 26 Scholars not supporting online access, 23 (88%) identified copyright issues, 9 (35%) identified chances of Plagiarism, 6 (23%) identified Lack of Administrative Support, 5 (20%) identified lack of expertise as the reasons to avoid online access to Ph d Theses. 3 Scholars said that they are not interested to provide wide availability of their theses (See Figure 3.44).

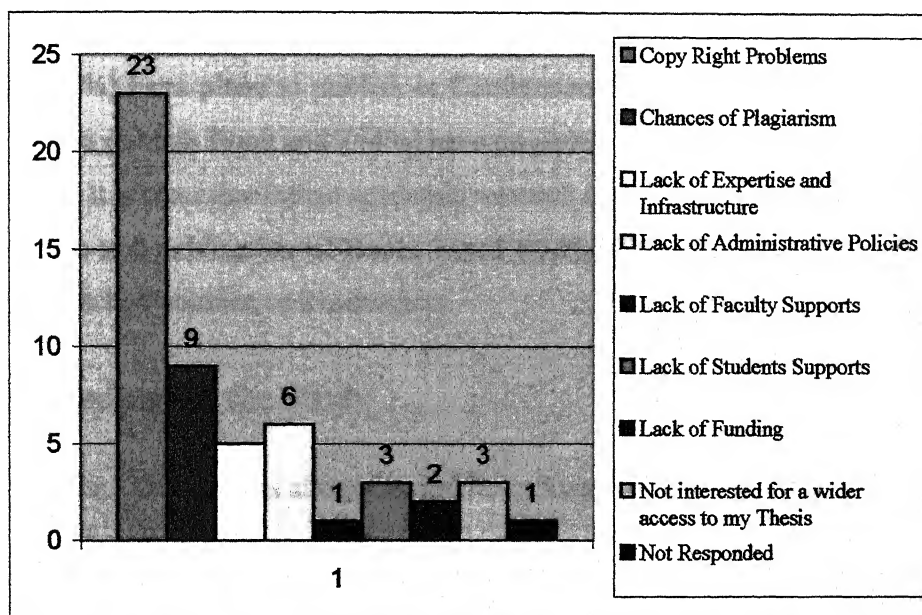


Figure 3.44 - Reasons to avoid Online Access to Ph D Theses

2.3.10 Publication Practice of Ph D Research

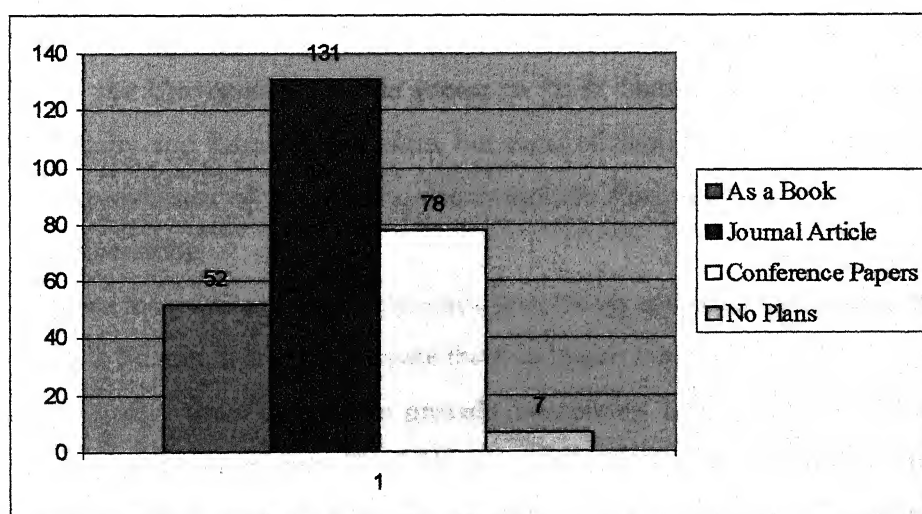


Figure 3.45 - Publication Practices of Ph D Research

Figure 3.45 shows the publication practices of Indian University research. Journal Articles will be the favorite choice for 131 Scholars (76%), 78 (45%) have plans to publish in Conference proceeding, 52 (30%) have plans to publish Book and 7 (4%) have no plans in publishing their research works. It is clear that Indian academic research is partially published through articles and publication of Books based on Ph D Theses is not a common practice by Faculties or Researchers.

3. Findings of the Study

1. Indian Universities altogether holding a huge volume of Doctoral Theses in their custody.
2. Large number of Universities has Multi Campuses and Regional Campuses, but most of them keep copies of Ph D Theses only in Central Library. Hence access to Ph D Theses collection becomes difficult.
3. Access policy to Ph D Theses collection varies with Universities, but most of them provide Closed access to the members
4. All the Universities provide access to Ph D Theses Collection to their Faculty and Research Scholars, but most of them are not accessible to non-members of the Library, which include Research Scholars of other Universities.
5. Since most Libraries do technically processing and well maintaining the Ph D Theses, it is easy to locate them in Indian libraries.
6. Only very few Universities provide Interlibrary Loan facility or Photo copying facility to their Ph D Theses collection. The availability of them physically or as a copy for an outsider, is not a reality in most of the Universities.

7. All most all Guides advise their Research Scholars to consult Ph D Theses in their discipline. Most of the Research Scholars consult them in the same University, a few consult Ph D Theses from another University.
8. Even though there are no major obstacles in accessing Ph D Theses from the same University, the Distance, unavailability of a distribution mechanism etc are the obstacles in accessing Ph D Theses collection of another Universities.
9. Majority of Guides, Research Scholars and Librarians rated Ph D Theses with high importance in furthering research in the respective disciplines.
10. "University News" of AIU does not cover doctorate awarding of all Indian Universities, which the only available current printed listing of Ph Ds awarded every month.
11. Only a very few Universities have the collection of Ph Ds awarded by other Universities.
12. Most of the Libraries created a computerized database of their Ph D Collection, and most of them regularly contributing the bibliographical details to INFLIBNET Theses Database.
13. Majority of Guides, Research Scholars and Librarians are well aware about ETD Initiatives at International level.
14. Very few Universities adopted a policy to collect electronic format of Ph D Theses along with its print submission.
15. Good Majority of Guides and Research scholars are willing to provide electronic format of Ph D Theses to their University.
16. In case of online access to their ETDs, majority of Research Scholars and Guides support the idea, but only a moderate majority of Librarians support this idea.

17. In case of access policy, there is only a moderate majority who supports Global access to Ph D Theses through Internet, where a substantial minority is still supporting access over Library LAN or Campus Intranet.
18. Majority of Librarian think Copyright issue will be an obstacle in creating ETDs. Chances of Plagiarism, Lack of funding, administrative supports, Government policies are also obstacles in creating ETDs in India campuses. But few Research scholars and Guides identified these as obstacles in creating ETDs.
19. Very few Universities adopted a policy to host their ETDs in any other Digital archive and majority of them are willing to provide the content to any national level Organization.
20. A considerable minority of the Universities already started creating their ETD System, and majority of the rest have plans to have ETDs by 2005.
21. Indian Universities are looking for Policies from Universities and Government agencies like UGC, Infrastructure Support, Technical Expertise, Financial supports etc to create ETD Systems in their campuses.
22. Majority of Indian academic community access INFLIBNET Theses Database, but effective awareness programmes are required to increase its visibility.
23. Most of them consult Newsletters or Journals or other sources from their own discipline to know about Ph D awarded in their area. INFLIBNET Theses Database, AIU University News and Handbook are less used during conceptualization of the research topic to avoid duplication. The unavailability of full coverage in these sources may be the reasons for their less usage.

24. Most of the Researchers publish their research results through Journal articles or Conference proceedings. Very few of them publish their research study in Book form.
25. The usage of Ph D Theses varies from Disciplines to Discipline.

4. Conclusion

This study is an effort to know about Indian scenario of Ph D Theses collection and stakeholders' attitude towards electronic publishing of them. Even though there are issues and concerns from every corner, the study clearly shows the trend towards the creation, organization and dissemination of information in electronic means. In the near future, every Indian University will collect electronic format of Ph D Theses and host them in a Digital Archive, which will be accessible through campus intranet or through Internet, according to their access policies. Since this idea is in the initial stages, it is better to have a common policy accepted by all Universities, in terms of format, workflow, software, accessing and archiving policies, which will help them to share this valuable resource through a national level platform identified by Governmental agencies working in this area, like INFLIBNET.

CHAPTER - 4

SUGGESTING A MODEL DIGITAL LIBRARY OF ETDs

1 Introduction

The importance of having Theses and Dissertations in electronic form, which has to be made available for easy search and access, is well established through the Literature Search and Survey of Indian Universities conducted as the part of this study. Since we came across different and variant methods for doing this at worldwide, it becomes necessary to propose a model for Indian Universities, which is the final objective of the study. This chapter derives the model, after providing descriptions to ETDs, its various formats, issues and solution and the final proposal. This model is derived by keeping in mind the very fetus nature of this idea in India and, at the same time, the changing technological environment in Indian campuses. ETD initiatives at worldwide should consider as a part of Open Archive Initiative for global access and distribution of Institutional scholarship, where Indian Universities also can get benefit of sharing and contributing. At the same time we have to confront the issues and should consider several strategies to comply with the latest technological developments and availability of free solutions for a better and effective implementation of ICT in our campuses.

2 ETD - Electronic Theses and Dissertations

ETD is an Electronic Thesis or Dissertation, which can take a variety of forms. At the simplest level it is an electronic version of a printed thesis or dissertation. This may be an old document that has been scanned and converted into PDF. Alternatively it could be a recently completed piece of work produced and archived in Word, or produced in Word and then

converted into PDF, in order to be made available on the Web. ETD allows more adventurous students to express their research results in creative and flexible ways that would not be possible if they were limited to paper based output. 'Born digital' theses may include audio and visual material and may not even be in a traditional linear format.

University of Texas in Austin ETD Project site gives a very clear distinctive definition to ETDs. The ETD is *similar* to its paper predecessor and has figures, tables, footnotes, and references. The title page includes researcher name, the name of department and University, and the names of Guide(s). The major organization of the chapters relate why the work was done, how the research relates to previous work as recorded in the literature, the research methods used, the results, and the interpretation and discussion of the results, and a summary with conclusions. Only *difference* is that the ETD provides a technologically advanced medium for expressing and disseminating the researcher's ideas. Researchers prepare their ETD using popular word processor or document preparation system(s), linking relevant multimedia objects, without the requirement to submit copies on cotton bond paper. Consequently, ETDs are frequently less expensive to prepare and easier to access and distribute (*University of Texas in Austin ETD Project Website*).

2.1 ETD: The Benefits

The provision of theses and dissertations in electronic format has significant advantages for students, faculty and staff, and institutions as a whole. Initially there may be some concern that an additional workload may be incurred by individual students or by the staff involved in establishing an institutional

repository. However, as illustrated below, the benefits to all groups are such that it is worthwhile undertaking the work involved in order to be able to provide a significantly enhanced service. *University of Pittsburgh ETD Site* provides the broader benefits of ETDs as follows;

- Broader exposure of university research through greater accessibility;
- Opportunities to use new forms of creative scholarship through use of interactive elements, multimedia, hyperlinks, etc.;
- Ability to have a hyperlink to the thesis/dissertation on homepages and electronic CVs;
- Professional development experience for researchers as they learn the basic skills of scholarly publishing in an electronic format;
- Conservation of paper, library storage space and of library staff time;
- Theses and dissertations more immediately accessible: publication occurs near point of submission rather than three to four months later;
- The option to have theses or dissertations accessible to any potential reader every day at any time.

Robert Gordon University ETD Site provides the category wise benefits of ETD in a very meaningful way as follows;

2.1.1 Benefits for Students

- A student is likely to improve his/her I.T. skills in the process of creating an ETD.

- The opportunity to create a born digital thesis allows a student to express his/her research results in creative and flexible ways.
- The production of an ETD is a cost effective alternative to printing and binding a large number of paper copies.
- Students' theses are likely to be read more widely if they are easily accessible via the Web.

2.1.2 Benefits for Academic Staff/Faculty

- Researchers can undertake full content searches of ETDs on the Web, without having to judge from an abstract whether it is worth requesting a copy of the full text of a hard-copy thesis on inter-library loan.
- Researchers are able to access ETDs on the Web as soon as they are required.
- ETDs can be obtained from remote locations at any time.
- A researcher can obtain access to an ETD regardless of the number of other academics using the same material at the same time.
- Researchers can use the possibilities offered by ETDs to motivate students and encourage them to think of the diverse ways in which their research results can be expressed.

2.1.3 Benefits for Institutions

- Access to the research output of staff and students is improved through the medium of ETDs.
- An increase in the level of use of such high level material is of benefit to the institution in terms of promoting its research profile.

2.1.4 Benefits for Libraries

- Shelf and storage space is saved.
- Staff time is saved when there is no longer any need to retrieve and re-shelve paper theses.
- The number of inter-library loan requests received is likely to be reduced.
- The collection of usage statistics is easier.

3. ETD System: a Model

3.1 Formats for Main Files

Proper arrangement and construction of the parts of a thesis or dissertation manuscript will likely vary according to the styles adopted by different disciplines and universities. When constructing the ETD system, there will be a need to convert files in different formats to a unified format, which can preserve the contents, format and layout of original documents, created by various programmes/processors. Still there is no standard electronic format accepted for all kinds of documents, the PDF format is the most popular and adopted in most current ETD systems. It is always better if the text-based portion of the thesis or dissertation is in PDF, which allows documents created through word processing like MS Word, to be made available on the Web in an effective way. PDF makes it possible for the fonts, format and pagination to remain consistent with the print version, when viewed from different platforms such as Windows, Macintosh, and Unix and different web browsers such as Internet Explorer and Netscape. Since Acrobat Reader to read PDF files, can be downloaded for free, everyone can access the

document. PDF is becoming standard document format all over the world, and hence long term archiving is better insured.

PDF stands for *Portable Document Format*. Adobe Systems developed the PDF standard and provides the premiere package for creating and manipulating PDF files, Adobe Acrobat. The process of converting to PDF takes instructions that would ordinarily be sent to a specific printer and prepares them to be viewed or printed on any computer with the free Acrobat Reader installed. *Postscript* is a standard language developed by Adobe Systems, which is used to send instructions to postscript compatible printers. These instructions describe the contents of all text and graphics to be printed, and where on the page each piece of content is to be printed. Ordinarily, these instructions are transferred to a Postscript printer, which interprets them, creates a printed copy based on the instructions, and then discards the instructions (*Adobe Website*).

3.2 Formats for Additional Files

The multimedia supplements can be mounted on ETD server for supporting the text, but it may be very limited in starting as the Faculty and administrators are still playing with the traditional systems. If we include the concept of *additional better information* along with *better access to information*, then the use of added files like multimedia will increase. MP3 is the file format of choice for audio files to be embedded in ETDs. It is a network-friendly, nonproprietary file format requiring relatively little storage space, which can be downloaded for free on the Web. Apple QuickTime and MPEG Movie Player can be used to incorporate video clips. The widespread

availability of these applications will ensure future access to the contents of ETDs, if the institutions take steps to make the software available by maintaining freely distributed applications by bundling them with corresponding media files on the host server, where if a user clicks on a link to a multimedia supplement, the application will automatically run. Other file types for image files can be .gif, .jpeg, or .tif; for video files .mov, .avi; and for audio files .aif, .midi, .snd, .wav, or as CD-DA, CD-ROM/XA, or MPEG-2.

3.3 Facilities and Supports Required

Most of the researchers have been creating their original thesis using a word processor, such as Microsoft Word or WordPerfect, since a long time. After the award of the degree, the electronic copy submitted by the researcher can be converted to a PDF file, which will retain the original document format. Conversion into a PDF file is a straightforward process and Libraries and Campus labs have to be equipped with Windows based computers set up to convert theses and dissertations written in Microsoft Word to Adobe Acrobat (.pdf) format. This application will allow us to convert the word processing document to PDF format as well as create bookmarks. Researchers can submit the document on disk, CD, Zip drive or through an online submission facility provide by the library or computer lab.

The ETD staff needs to provide sufficient technical support to the researchers who are getting ready to write or have successfully submitted their theses or dissertations, in converting their documents to PDF files. At the same time the guides who want to learn more about the ETD creation process, computer support staff who want to learn word processing tips and Adobe

Acrobat software and anyone who wants to learn more about creating PDF files can be trained. Training and online supports can be provided through Workshops, Clinics, Consulting Assistance, Web Pages, and Newsletter articles etc. It is better to train the technical staff as early as possible. We have to make sure those adequate resources: staff hours, copies of Acrobat and other software, scanners, multimedia creation support are allocated.

3.4 Software to Manage ETDs

In India, for long-term preservation, we have to find out an economical way to save digital content for future generations by using variety of open source archiving solutions. We should give sufficient importance and consideration to a number of systems that have already been tested and adopted by respected institutions like DSpace, Eprints, Virginia Tech. ETD-db, Greenstone and several other software packages. It is a fact that many open packages show some degree of similarity, but the key factors to select, should be Suitability, Functionality, Interoperability and Sustainability. *Copeland and Penman* suggests the following criteria for selecting software for ETD systems (*Copeland and Penman, 2004*).

Suitability: The software selected should be relatively simple to install across a range of hardware types and operating systems and it should be available at no cost via an open source license. The ease of customization, enhancing revisions and upgrades to resolve bugs are the prime concerns.

Functionality: It should have an intuitive and appealing user interface for both administration and author purposes and it encourage them to submit content. In case of Long-term preservation, the incorporation of persistent

URLs to ensure accessibility and future proofing of hyperlinks, etc should be taken care. The Search through simple and advanced metadata search capabilities will allow a wide variety of search methods, ideally with full content searching ability. The Metadata with suitable fields should exist making it possible to alter metadata and for integrating in to any national or institutional schema. The software should support storage capability with any file formats or file sizes.

Interoperability: To ensure cross-institutional access, the software system selected should comply with the most up to date version of the 'Open Archives Protocol for Metadata Harvesting' (OAI-PMH). The selected software should also meet the needs of individual institutional policies with regard to the integration of ETDs with other material in electronic repositories. This is an important factor to consider to ensure that the new system will be able to offer the functionality to import and export information from one system to another.

Sustainability: Repositories should be regarded as long-term commitments, and thus it is important that the institution can be confident that the chosen software will offer continued support and development. This is especially important considering the relative infancy of some of the software, where bugs and conflict issues may still be coming to light. As it is common with much open source software, once a user community is established this knowledge base can help to 'keep the ball rolling' by offering advice and support to those new in the area.

There were lots of research and comparison available to choose in between suitable software for an ETD. *Jones* from Theses Alive project from UK did a comparative study and evaluated two open source packages to deliver E-theses functionality via a Web-based interface: ETD-db by Virginia Tech and DSpace from HP and MIT. ETD-db is specifically designed for ETDs and endorsed by the NDLTD, but was not reliable to Institutions who like to create a repository and host ETD as a part. He came to a conclusion that DSpace has a more comprehensive metadata collection process and that it stores this metadata in a more flexible manner. Due to the customizable nature of the Dublin Core registry within DSpace and the option to modify the submission interface, DSpace will take flexibility and future changes in metadata schemas. The DSpace archive is perhaps more geared toward digital preservation and the level of configuration available within the DSpace administrative area is also excellent (*Jones, 2004*). The capability of DSpace to handle multilingual content, even at Metadata level using globally accepted UNICODE standard are important issue in countries like India for selecting this solution (*Patel, Vijayakumar and Murthy, 2005*).

3.5 Prototype

DSpace is a groundbreaking digital library system that captures, stores, indexes, preserves and redistributes the intellectual output of a university's research faculty in digital formats (*DSpace Website*). The future of E-theses and of archiving and searching in general depends on institutions being able to deliver top quality services, with a high degree of interoperability. This means, among other things, that systems must continue to be developed and they must be able to handle many different types of digital object. It is believed that DSpace will fulfill these requirements to a higher degree and

will continue to improve in this way in the future (Jones, 2004). As an open source system, DSpace is now freely available to other institutions to run as-is, or to modify and extend as they require to meet local needs. From the outset, HP and MIT designed the system to be run by institutions other than MIT, and to support federation among its adopters, in both the technical and the social sense.

3.5.1 Setting Up of DSpace Server

DSpace was downloaded from <http://dspace.org/>. It has been installed in test-bed and experimented its capabilities and performance. After all sorts of testing required, DSpace was customized according to the requirements and it was installed on one of the WWW Server on Linux (RedHat 9) platform. Then a request had gone to Corporation for National Research Initiatives (CNRI) site for providing *Persistent Identifiers (CNRI Handles)* which promotes interoperability among open archives through Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). After all necessary registrations, the DSpace Server became live (See the Figure 4.1)

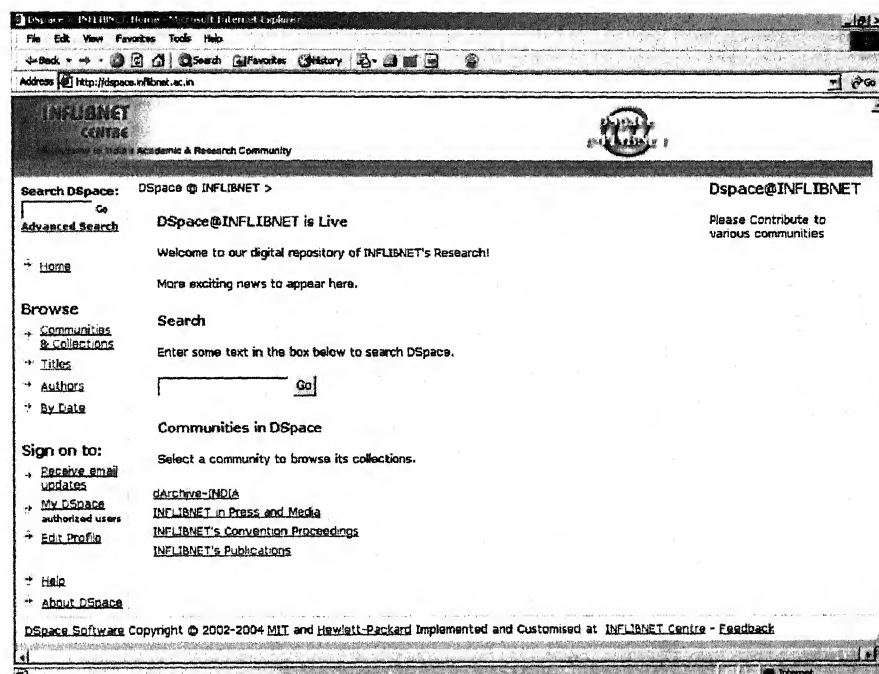


Figure 4.1- DSpace Home Page

3.5.2 Creation of Community and Collection

Next step is to create a *Community*, which are basically groups that contribute content to DSpace – and Communities in turn each have *Collections*, which contain the content items, or files. Communities determine their own content guidelines and who has access etc. An administrator on the DSpace team set up workflows for content to be approved, edited, tagged with metadata, etc. This organization structure allows the head of a community to make content policy decisions locally – where the content is created. Communities manage their own metadata and can also customize the look and feel of their pages in DSpace. The Figure 4.2 shows that how to create a *Community*, the name used here is *ETD@INDIA*.

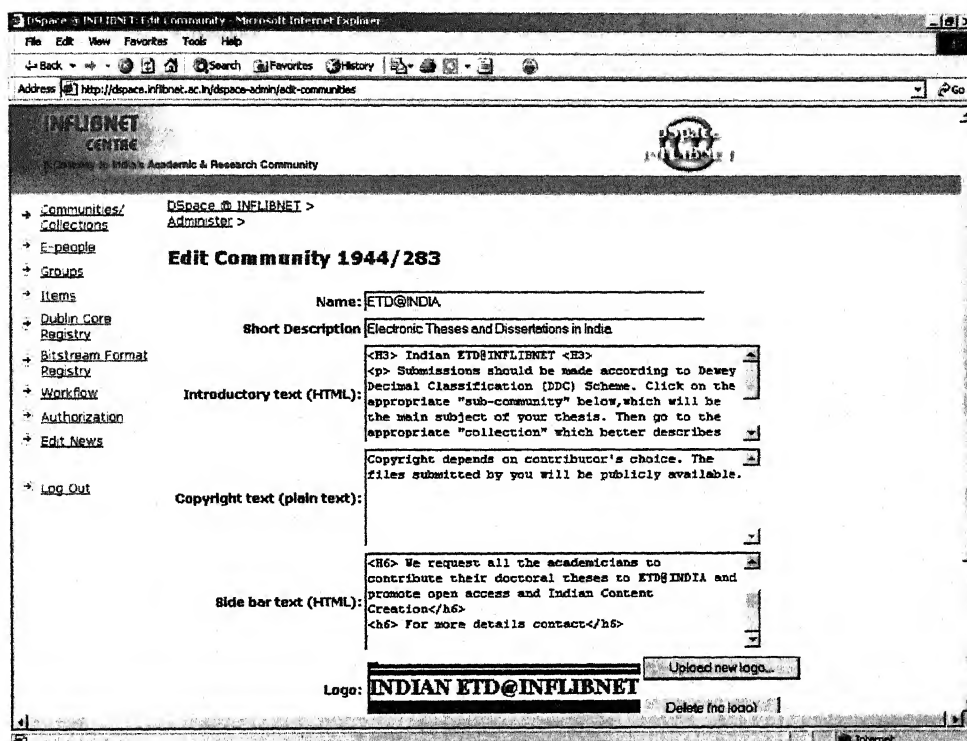


Figure 4.2 - Creation of Community ETD@INDIA

Next step is to create *Sub-communities* under *Community*, which will again be divided into *Collections*, where researchers can submit their thesis. DSpace gives the provision to create any number of *Sub-Communities* and *Collections* and here these were made according to Dewey Decimal Classification (DDC) Scheme. The following *Sub-Communities* were created, which can be seen in Figure 4.3.

- 000:Computer Science, Information and General Works
- 100:Philosophy & psychology
- 200:Religion
- 300:Social Sciences
- 400:Language

- 500:Science
- 600:Technology
- 700:Arts & Recreation
- 800:Literature
- 900:History & Geography

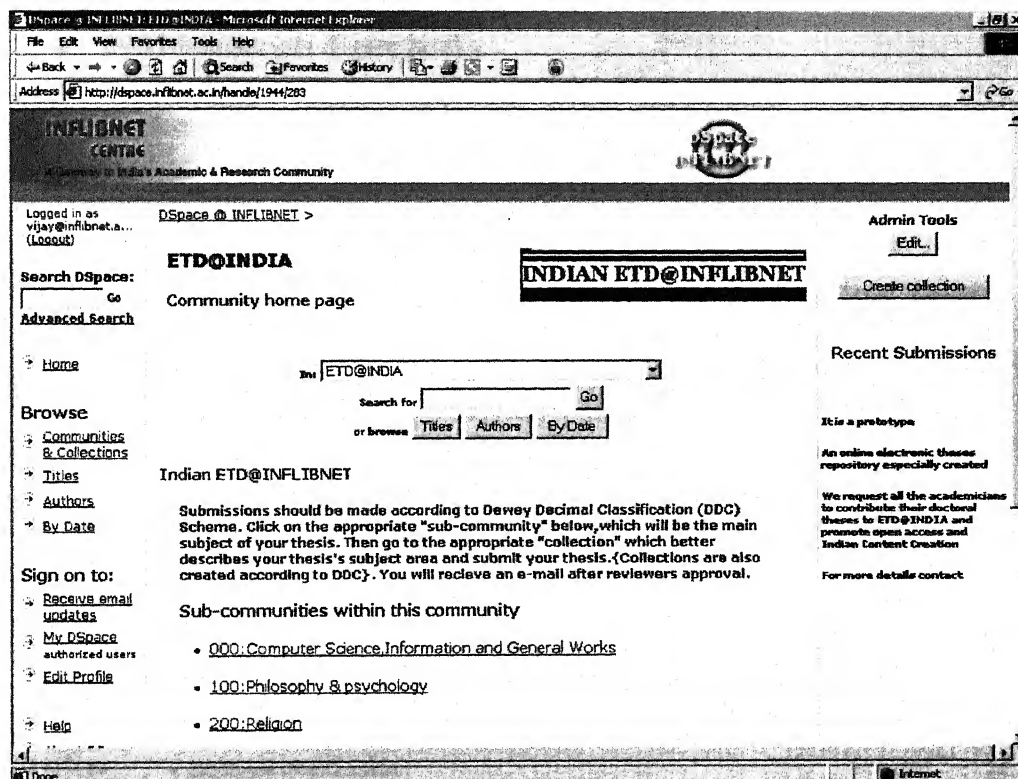


Figure 4.3 - ETD@INDIA Community Home Page

Collections were also created according to DDC. For example, the Sub-Community "000:Computer Science, Information and General Works" divided in to following *Collections* which can be seen in Figure-4.

- 010 Bibliography

- 020 Library & information sciences
- 030 General encyclopedic works
- 050 General serial publications
- 060 General organizations & museology
- 070 News media, journalism, publishing
- 080 General collections
- 090 Manuscripts & rare books

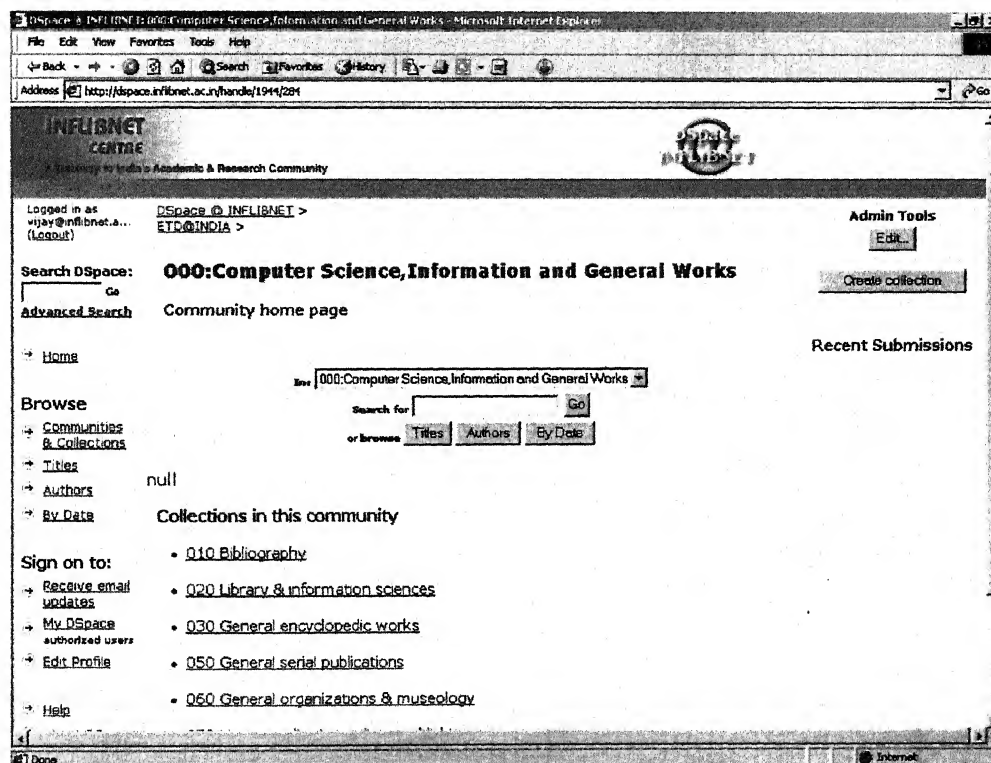


Figure 4.4 - ETD@INDIA Collections Home Page

3.5.3 Submitting the Item

For submitting a thesis, researchers can come to the Submitting page by clicking on Communities and Collections. They can select the collection

according their subject. For example, if one wants to submit under Library and Information Science collection, they have to click there. During Submission, one has to go through the following processes, which are described in the following Figures.

- *Selecting the Collection* - *Figure-5*
- *Describe the item (1)* - *Figure-6*
- *Describe the item (2)* - *Figure-7*
- *Describe the item (3)* - *Figure-8*
- *Upload the item* - *Figure-9*
- *Verify the item (1)* - *Figure-10*
- *Verify the item (2)* - *Figure-11*
- *Licensee Check* - *Figure 12*
- *Finishing Message* - *Figure 13*

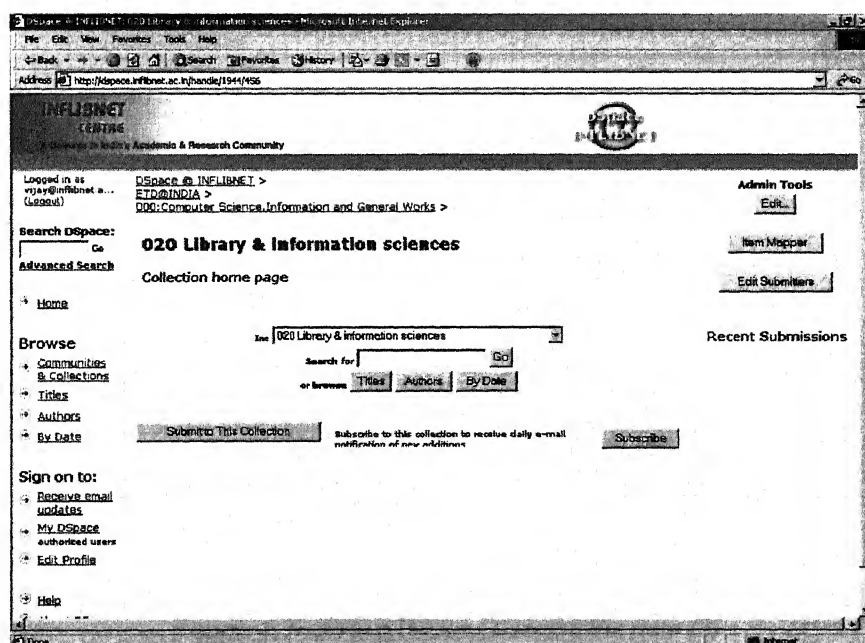


Figure 4.5 - ETD@INDIA Selecting Collection

DSpace Software Copyright © 2002-2004 MIT and Hewlett-Packard Implemented and Customised at INFLIBNET Centre - Feedback

Figure 4.6 - ETD@INDIA Describe the item (1)

Enter the names of the authors of this item below.
Last name First name(s) + "Jr"
e.g. Smith e.g. Donald Jr

Authors: Vijayakumar JK Remove This Author
Munty TAV
Khan MTM
Add More

Enter the main title of the item.
Title: Importance of Ph D Theses in Furthering Research : a Model

Enter the series and number assigned to this item by your community.
Series Name Report or Paper No.
Series/Report No. Add More

If the item has any identification numbers or codes associated with it, please enter the types and the actual numbers or codes below.
Identifiers (URI) Add More

Select the type(s) of content you are submitting. To select more than one value in the list, you may have to hold down the "CTRL" or "Shift" key.
Type: Recording musical
Recording oral
Software
Technical Report
Video

Figure 4.7- ETD@INDIA Describe the item (2)

Submit: Describe Your Item

Please fill further information about your submission below. ([More Help...](#))

Enter appropriate subject keywords or phrases below.

Subject Keywords:

Enter the abstract of the item below.

Abstract:

Enter the names of any sponsors and/or funding codes in the box below.

Sponsors:

Enter any other description or comments in this box.

Description:

Figure 4.8 ETD@INDIA Describe the item (3)

Look in: Desktop

Files and folders on Desktop:

- MyDoc
- MyCom
- MyNet
- Acrobat 4.0
- Messenger
- Soap
- Varemoht
- Twinkl
- ACDSee 3.2
- Book-Thesis Comparison
- Idcardvis
- field
- InfraView
- Item-It
- List of E-Journals
- Media Player
- Medical record NGCE-I
- Medical record NGCE-II
- Reg. Form
- WinZip
- WORD

File name:

Files of type: All Files (*.*)

If you click "Browse...", a new window will appear in which only display files of type HTML. If the file you are uploading isn't an HTML, instructions for Netscape users are available.

Please also note that the DSpace system is able to preserve the content of certain types of files better than other types. [Information about file types](#) and levels of support for each are available.

Document File:

DSpace Software Copyright © 2002-2004 MIT and Hewlett-Packard Implemented and Customised at INFLIBNET Centre - Feedback

Figure 4.9 - ETD@INDIA Upload the item

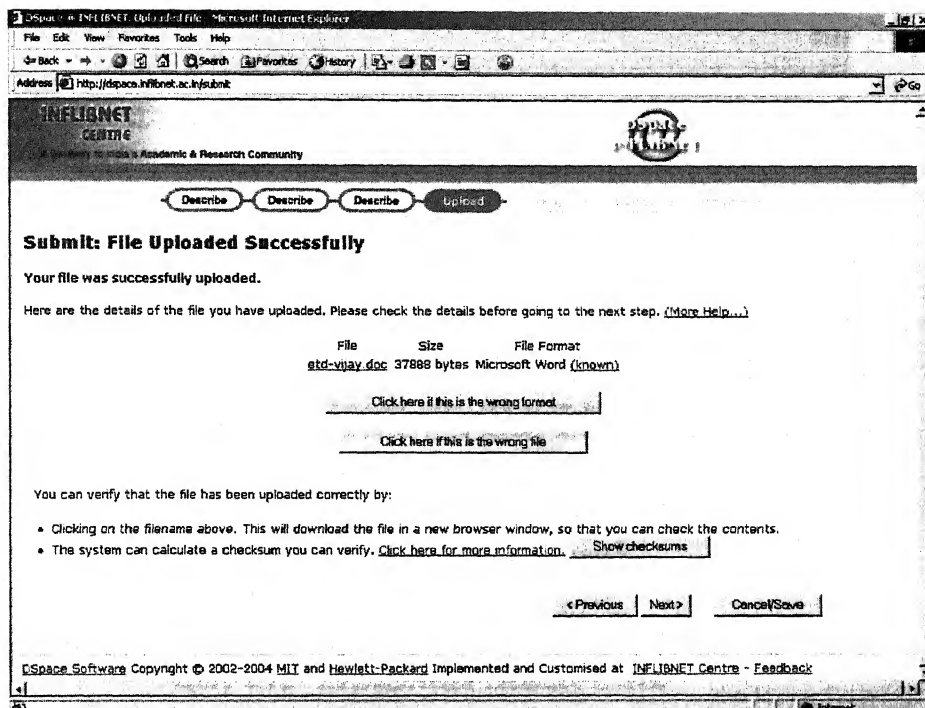


Figure 4.10 ETD@INDIA Verify the item (1)

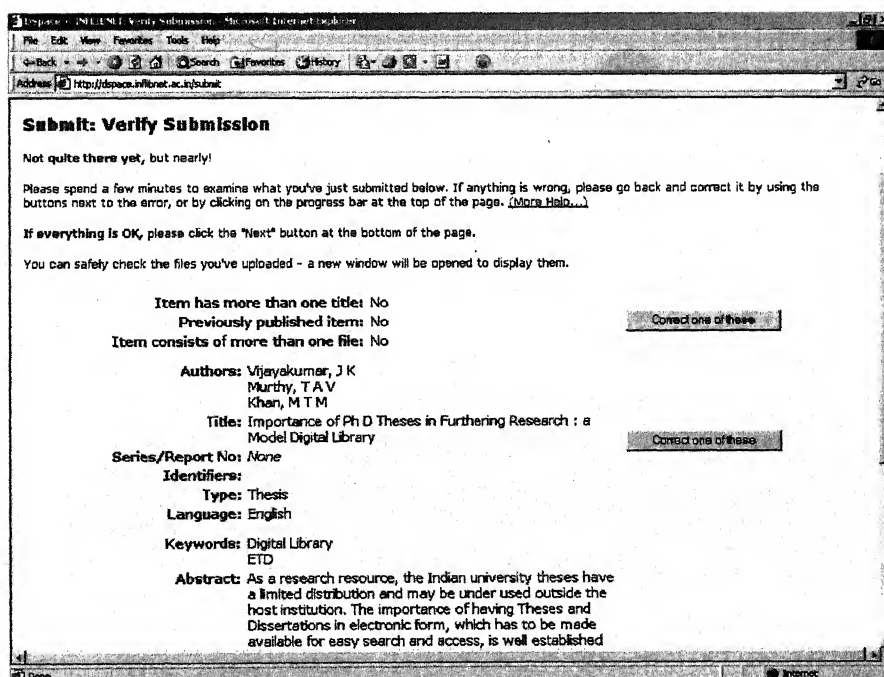


Figure 4.11 - ETD@INDIA Verify the item (2)

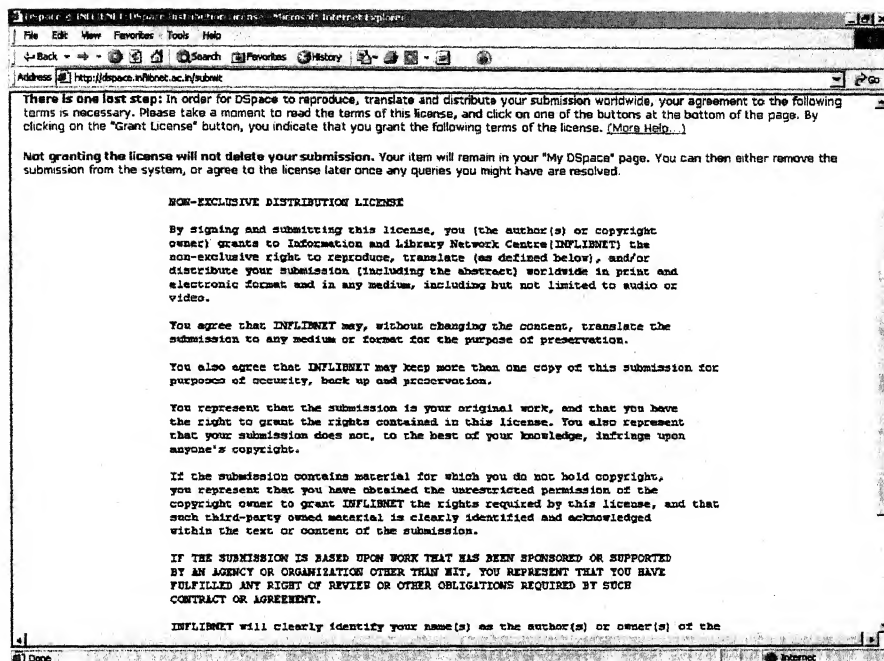


Figure 4.12- ETD@INDIA Licensee Check

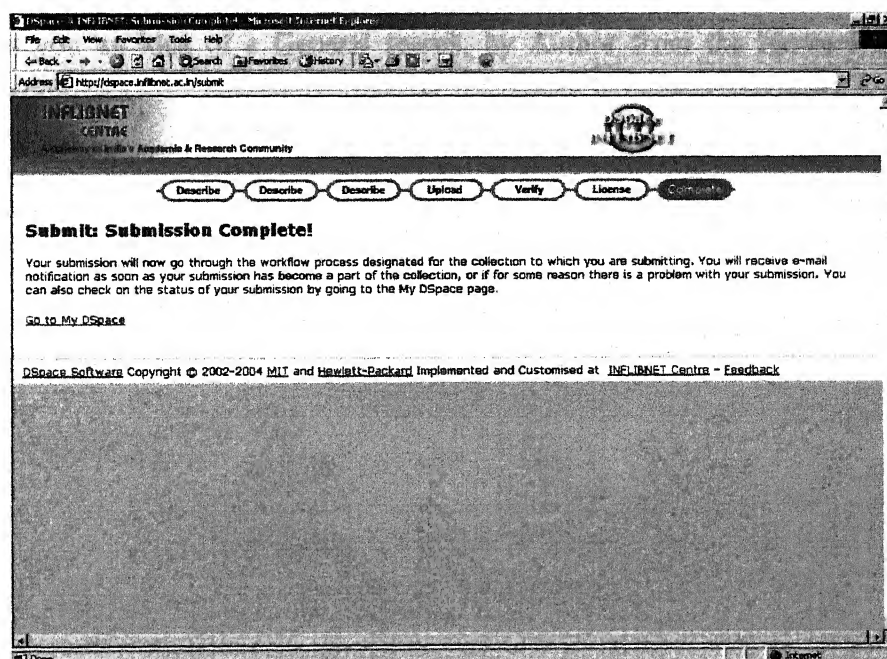


Figure 4.13 - ETD@INDIA Finishing Message

3.5.4 Search an Item

DSpace allows end-users to discover content in a number of ways and search is an essential component of discovery in DSpace. Users' expectations from a search engine are quite high, so a goal for DSpace is to supply as many search features as possible. DSpace's indexing and search module has a very simple another important mechanism for discovery in DSpace is the browse. This is the process whereby the user views a particular index, such as the title index, and navigates around it in search of interesting items. The browse subsystem provides a simple API for achieving this by allowing a caller to specify an index, and a subsection of that index. The browse subsystem then discloses the portion of the index of interest. Indices that may be browsed are item title, item issue date and authors. Additionally, the browse can be limited to items within a particular collection or community. The following figures gives you an idea of a General search, by Author from the Home Page of ETD@INDIA.

- *General Search [by Author Name]* - *Figure 4.14*
- *First Level of Display* - *Figure 4.15*
- *Second Level Display* - *Figure 4.16*
- *Full Text Display* - *Figure 4.17*

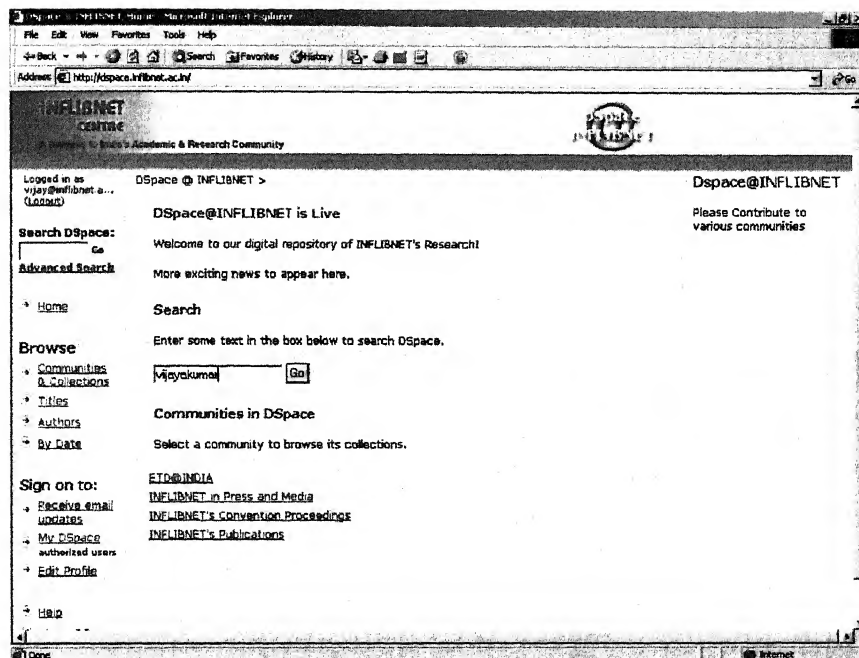


Figure 4.14 - ETD@INDIA General Search [by Author Name]

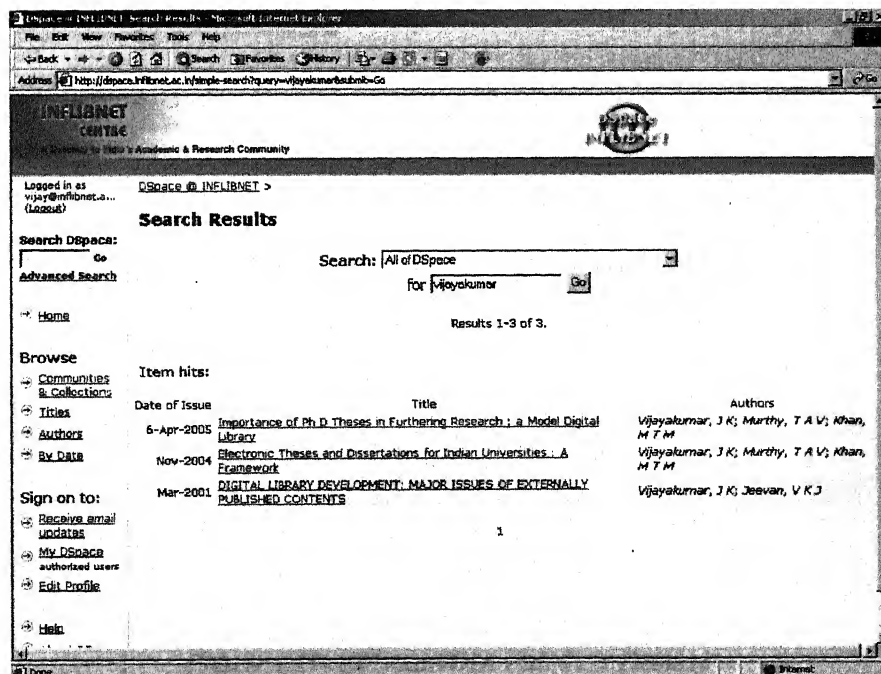


Figure 4.15- ETD@INDIA First Level of Display

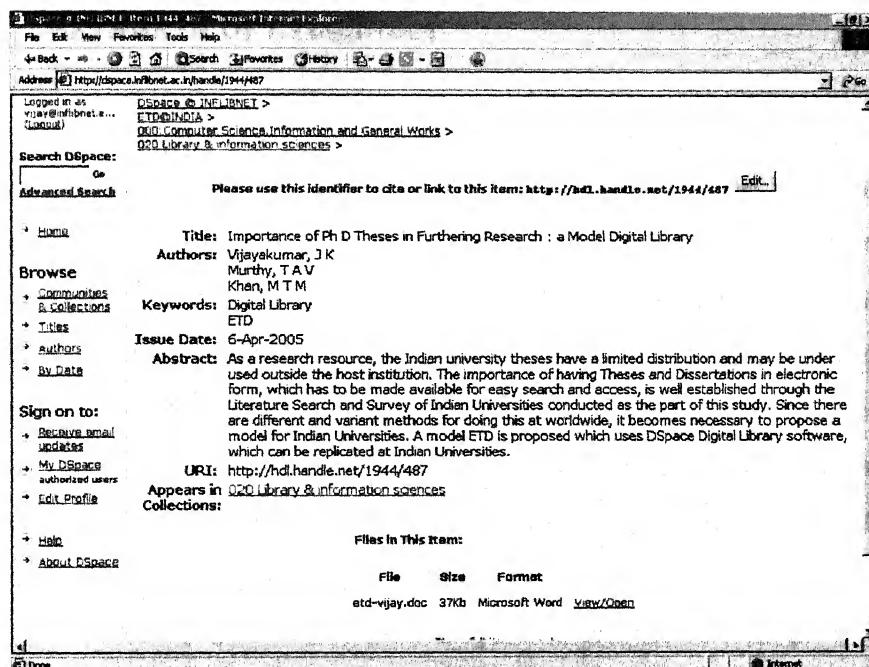


Figure 4.16 - ETD@INDIA Second Level Display

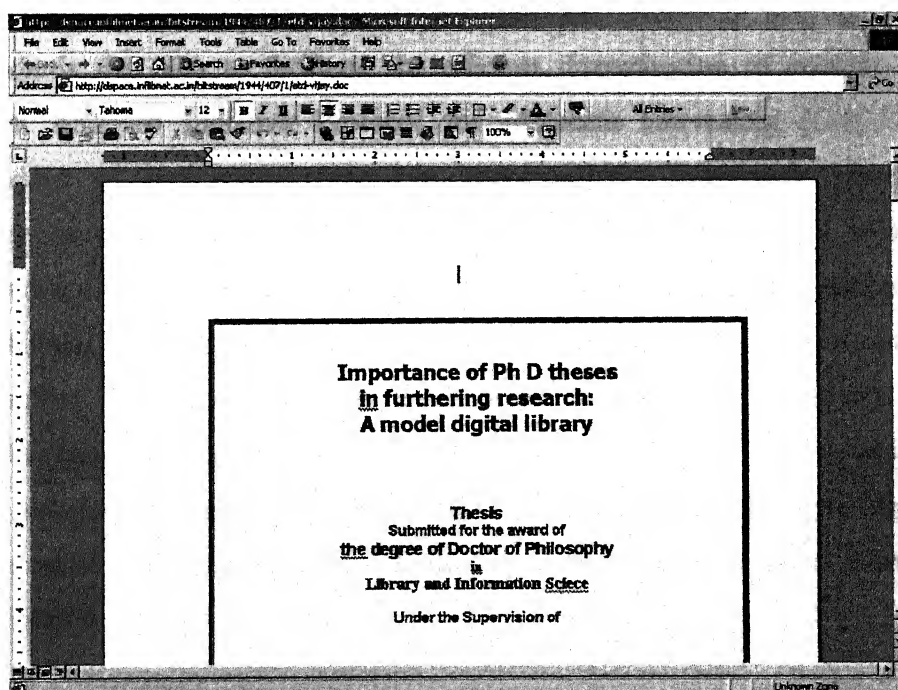


Figure 4.17- ETD@INDIA Full Text Display

3.5.5 METADATA OF ETD@INDIA

DSpace holds three types of metadata about archived content, such as Descriptive Metadata, Administrative Metadata and Structural Metadata. In Descriptive Metadata, Each *Item* has one qualified Dublin Core metadata record, in which the set of elements and qualifiers are default configuration included in the DSpace source code. Administrative metadata includes preservation metadata, provenance and authorization policy data and most of this is held within DSpace's relation DBMS schema, where Provenance metadata (prose) is stored in Dublin Core records. The structural metadata includes information about how to present an item, or bit streams within an item, to an end-user, and the relationships between constituent parts of the item.

The Open Archives Initiative develops and promotes interoperability standards that aim to facilitate the efficient dissemination of content. The Open Archives Initiative Protocol for Metadata Harvesting (*OAI-PMH*) provides an application-independent interoperability framework based on *metadata harvesting*. Any DSpace server can act as a *repository*, which is network accessible and can process the OAI-PMH requests as described by OAI-PMH. The *Items* submitted in this *repository* will have a *unique identifier*, which unambiguously identifies an *item* within a *repository*, i.e., *CNRI Handles*. Thus based on request, a record will be represented, which is the metadata expressed in a single format in an XML-encoded byte stream. An example generated by OAI-PMH based on *Dublin Core Schema*, is shown in Figure 4.18 below.

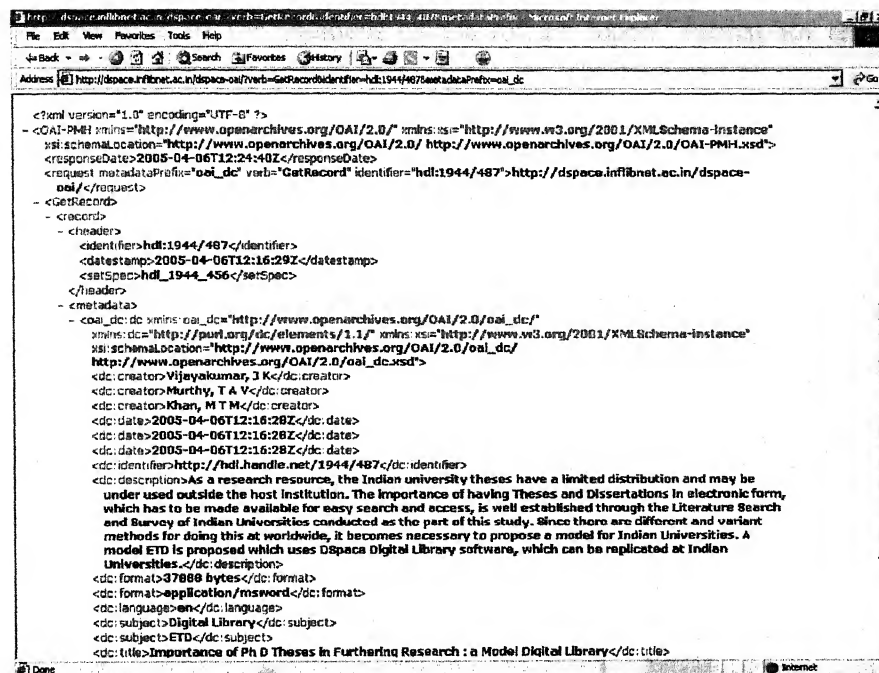


Figure 4.18 - ETD@INDIA OAI-PMH Metadata Display

3.5.5 WORKFLOW OF ETD@INDIA

A model workflow of ETD available at *NDLTD Website* is provided in Figure 4.19, with small modifications. The workflow of the proposed system is in the same line, but with some modifications. Since the submission, defense, revision etc are not covered in this model, the workflow starts from the submission of Theses in electronic format by the researcher to the Library or ETD Department, after the final award of the degree. We should provide an MS-Word template file for the students to use during the preparation of thesis. This will help them in making their preparation step easier by setting up all their formatting according to the standard policy, and incorporating tagging of the metadata in the document itself, so that we can extract it automatically and save the work of having to re-enter it. PDF can be used as the archive format

as this seems to be the standard choice for an "open" format for text based documents.

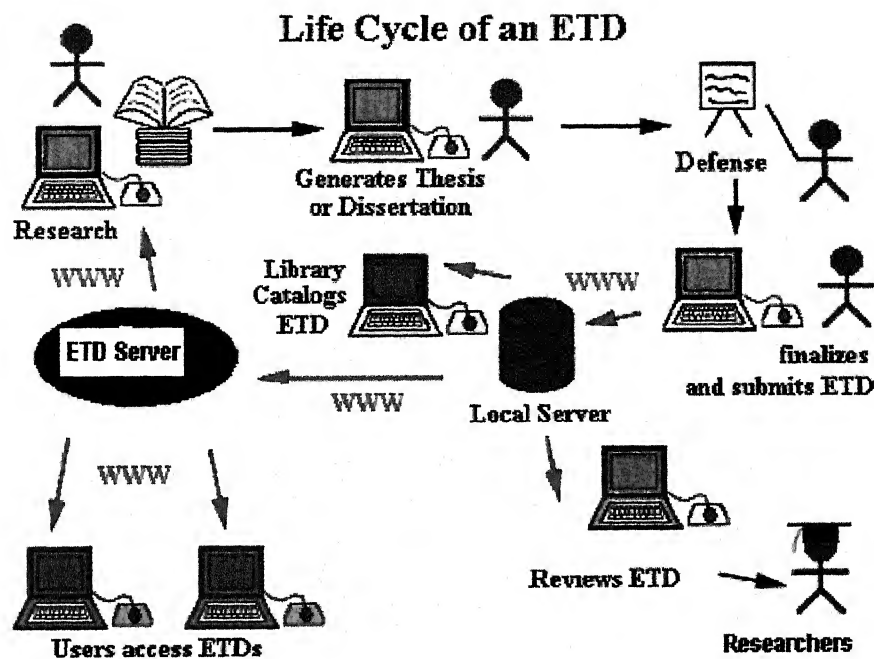


Figure 4.19 - NDLTD Workflow (with modifications)

Library or ETD Staff will be responsible for processing ETDs by making sure that the file's formatting is correct, the links work, etc. Metadata of ETD can be created and made available for searching and accessing. The Word template provided should have tagged elements for all the metadata to be collected, except for rights administration, which has to be verified by Staff. The Staff can do the submission to ETD System with author-contributed content and metadata, where they can add supplementary metadata, keywords, and classifications. The default submission procedure of DSpace does not support automatic metadata extraction from the content item, but if something

goes wrong, they can easily correct it in the verification stage that follows. After this, the license agreement type is selected, and recorded in the metadata, which completes the submission process.

The administrator of the system can then review submitted ETDs and to approve them, or to reject them for some reason. If a submitted item is not accepted then the administrator's comments can be sent to the original author by email. The author revises the material, and then resubmits. They can also review any submitted version with the administrator. Additional duties of the administrator of the ETD System include designating groups that can approve user submissions, and management of user accounts including those of the ETD administrators. Individual user accounts can use the local authentication scheme, DSpace supports customizable authentication systems implemented using a standard interface. After final approval, a message will go to the researchers and registered users, about the submission of new ETD. Access policy to ETDs can also be implemented by the administrator through the DSpace server, for Intranet or Internet access.

4. CONCLUSION

At international level a significant number of universities have made doctoral and masters theses online. Our goals in India is to establish ETD collections to provide services to access them efficiently, and to organize distributed ETD collections seamlessly. However, we still need to pay more attention to student training issues, and to the retrospective digitization of traditional print theses and dissertations. The urgent tasks are training, national policies to guide and standardize the development of local ETD

initiatives, where greater technical collaboration is required and, ultimately, to develop a worldwide digital library of theses and dissertations.

The proposed model can be used by Indian Universities to create their ETDs and provide access either on their Intranet or on Internet. Popularization of ETDs and its full advantages for faculty, students, and researchers are the foremost attempt to start of, that cover issues of copyright and choice of access, and that encourage research scholars to carefully consider the ethics of restricting their research from access by the national and international scholarly community. Well-equipped computer labs must be put in place to provide workstations, software, and technical support staff for students writing ETDs. And standards need to be developed for the presentation of dissertation research—standards which facilitate the development of a useful and easily navigable digital collection of works, but which do not unnecessarily constrain the use of software and design considerations graduate students deem essential to their research. Careful consideration of these requirements and their full support will contribute substantially to making this transition smoothly. The potential ETDs have to transform graduate education in ways that benefit both students and the scholarly community depends upon it.

University Grants Commission, as the apex body dealing with Indian universities, can release sufficient funds for launching this project. Thus this digital library can serve as the most important component of the Indian academic and research information gateway and the UGC-Infonet. INFLIBNET theses database already contains sufficient search fields and search engine has developed to access this database. Full text of theses can be

hosted in individual universities so that a federated search has to be developed, or can be hosted in INFLIBNET Website for wider access. INFLIBNET, as the only one agency in India to deal with University library automation, has to take more initiative in this regard in collaboration with other agencies interested in this area.

CHAPTER - 5

SUGGESTIONS AND CONCLUSION

1. Suggestions

Electronic Theses and Dissertations are a recent concept for academia in India. The model suggested through this dissertation can be implemented in any Universities. The following suggestions can be taken in to account during the implementation.

- Development and implementation of policies for ETD systems are very important for any University. This model only suggests software, Document formats, templates, software etc. But policies are required to be framed for submission, approval, copyright and access management, by Individual Universities.
- They have to decide whether the ETD submission is optional or mandatory for students.
- They also have to decide whether electronic versions of paper theses, or 'born-digital' theses (with no paper equivalent) are to be created by students.
- Agreement and approval to implement changes to institutional regulations should be obtained from appropriate committees.
- .Advices on copyright/IPR issues have to be provided. There should be some kind of detecting system to avoid plagiarism.
- The University has to take decisions whether ETDs should be submitted only in the institutional repository, and/or to submit to a national collection.
- .There should be experts identified for entering and approving Metadata based on the core set.

- The Idea of Central search services at national level and full text harvesters at local harvesters may be a viable solution in India at initial stages
- The Material available in a thesis is due for publication, or the author is actively seeking to publish the material and therefore, the release of the material would prejudice substantially the commercial or academic interests of them. It can be solved through sufficient policies and providing the freedom of online release to the authors.
- An OAI-compliant thesis archive and submission system for use in all participating universities to develop and implement a metadata export system (crosswalk) capable of delivering our metadata to other metadata repositories, should be our ultimate goal.
- At present condition, Universities can start collecting electronic format of Theses from researchers as a mandatory policy.

2. Limitations of the Study and Scope for future Studies

As the study was focused on born digital Ph D Theses, it did not take the retrospective conversion of existing collection in Indian University Libraries. Through the study it has come to know that there is an enormous number of Ph D Theses available, which can also be converted to Digital format. The present condition of old Theses, the necessity to digitize them, quality and quantity of this collection, priorities in digitizing them, financial, social, copyright and infrastructure issues related to this can be further studied. Once they are digitized and made available in PDF or any other accepted format, the model proposed in this study can be used to archive them.

The proposed model uses Dublin Core metadata for describing the ETDs. The ETD-MS Metadata standard especially developed by NDLTD for ETDs, can be implemented in this model (*Atkins, 2004*).

The workflow of this model starts with Submission from a researcher, after the final award. The full version of an ETD system can be developed by creating Add-ons to DSpace system according to the requirements or practices of the Universities. This will be a fully automated system on par with the existing traditional methods like, registration of a researcher, submitting the synopsis, approval by the committee, interaction with the guide, sending interim reports, submitting thesis to committee members, comments and revisions by members and guide, final submission and the award of degree. The model TAPIR developed at Theses Alive Project in UK, as an Add-on to DSpace is a good example for this. Similar experiments can be taken up for Indian conditions (*TAPIR Website*).

The opinions of Indian Journal publishers can be studied, where most of the foreign journal publishers are clearly put the policy to reject the submitted articles prepared based on ETDs available online for free access. This tendency will prevent Researchers from allowing full text access to their ETDs over Internet, up to a period they need to publish their articles or books based on their research. This may be the reason for the considerable minority of the respondents of this survey, to have the opinion of preventing the online access of their Theses over Internet, may for some time.

3. Conclusion

In the twenty first century the Society is becoming more information conscious and millions of life are embedded with quality-based data and information to compete with each other. Academics play a very significant role in molding and creating new generation of scholars, researchers and better situations to meet these challenges at national and international level. Undoubtedly, higher education system contributes to the majority of this component. The most important ingredient of this happens to be that of Doctoral theses, which are the intellectual properties of the individuals in a particular domain, or subject, or a faculty, thus directly or indirectly contributing to the growth and development of individual and society. Unfortunately, there is no uniform standard followed even at twenty first century, where the information and communication technology is dominating and paving the way for easy and multi-user access with exhaustive information through computer based networks in an Open Access mode. However, the sporadic efforts are made in some parts of the world like; USA, UK, Germany and few other advanced countries in addressing the issues relating to making full text of this valuable information source to reach its intellectual component across the world and save time and duplication of the efforts for enriching multi-disciplinary projects.

India, which has come out of colonial domain in the last 55 years, is enormously progressing as a super-power in the knowledge society and competing with all developed, industrially advanced and academically enriched groups with qualitative and quantitative information with solid human resources at its back. The number of universities and institutions of

national importance are striving hard to bring out quality type of investigations, research, enquiries and calculations relating to the flora and fauna and international issues including comparative studies etc. Millions of young minds over the period have been contributing in this might as per the prevailing situations. In the last few years, the Open Access sources phenomena has strongly embarked upon using ICT for sharing of rich and valuable content through different modes like; computer networks, intranet, internet and interoperable web sites. In this context, sincere effort is made in identifying the issues and problems and lack of coordination and uniformity in the Indian scenario, which prompted to investigate into the system while making a comparison with the already developed scenario and come out with an ideal model suiting to Indian circumstances and be a partner in the global village.

Accordingly, the importance of Ph. D thesis in furthering research and a model digital library has been chosen as a type of investigation and address the issues by way of conducting literature survey, interaction, analysis and a methodology of comparison etc and finally arrived at conclusions with a model that could be considered by the University Grants Commission which is an Apex body in India in the Higher Education scenario for canalizing the suggestions made in this research. Through this model, the gap between the research, technology and access could be bridged at a faster, economically and viable rate for enriching the future research. This exercise will also help as a model for developing the nations to learn and not to repeat the experiences undergone in the Indian Higher Education model for Thesis and dissertations.

It also leaves a margin for further investigations in the related areas like; multilingual theses and dissertations, scaleable model as technology is advancing rapidly, comparative studies between the suggested model and the available models etc. In addition to this, lots of socio-metric status relating to Ph D Theses would also find way for further Investigations.

It is the earnest hope and desire that the hard work put in through the investigation would contribute to the Indian Higher Education and mitigate the problems faced by the Universities, Researchers, Faculty members etc, if implemented by a powerful national agency under the umbrella of University Grants Commission, like INFLIBNET.

ANNEXURE-I
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ANNEXURE-III

INFLIBNET THESES Database

1. Introduction

Development of Union databases of Indian University Libraries is one of the major activities of INFLIBNET. One of the important Database developed by INFLIBNET is THESES Database, which is available online (free) at <http://www.inflibnet.ac.in>. This database of INFLIBNET has around 1,52,200 records of the doctoral dissertations submitted to around 200 Indian universities. The bibliographical details like researcher, title of the thesis, guide(s), university name, department name, subject(s), year of award etc are provided for searching and retrieval. This is the only one online tool available to find out the research output of Indian Universities and an authoritative tool for the researchers, because Indian universities are contributing the data to this endeavor.

2. Details of INFLIBNET Theses Database

2.1 Coverage

- The development has initiated in 1994.
- It contains the record starting from the year 1905.
- It covers only Doctoral Dissertations, i.e., Ph Ds.
- It contains 1,52,00+ unique bibliographic records.
- It contains records from all subject areas.

- Data has been contributed / collected by / from more than 200 universities/institutions from all over India, since its initiation.

2.2 Sources of Data

- Participating libraries are sending the records in electronic format (ISO).
- Direct data entry at INFLIBNET from the following sources.
 - Theses of the Month column of "University News" (Weekly).
 - Bibliography of Doctoral Dissertations from beginning to 1991 (Stopped).
 - Data collected in hard copy from universities.
 - Official Communication from Registrars/Controller of University.
 - Personal communication from University Academic Department and individual Faculty Members.

2.3 Benefits

Access to this comprehensive and online database will;

- Highlight the intellectual contribution of the universities in the country
- Give trends in research in each area
- Give trends in productivity of Indian Researchers
- Help in determining one's research area
- Avoid duplication in research work
- Facilitate Inter-Library Loan wherever and wherever possible
- Promote resource sharing

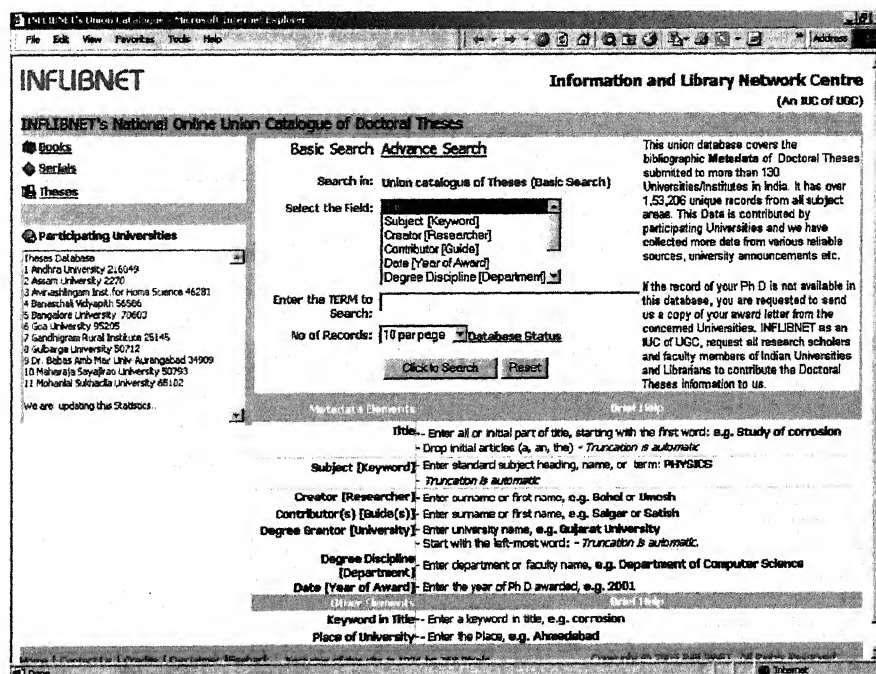


Figure III.1- Search Interface for INFLIBNET Theses Database

2.4 Access Points of Theses Database (Metadata of Theses)

This online database has the provision to search from the following access points to get the specified records, according to searchers' interest. The Search Terms are Title of the Thesis, Creator [Researcher], Contributor [Guide], Discipline [Department/School], Degree Grantor [University], Place, Date [Year of award], Subject(s), Key Word in Title, Free Text (for searching in all fields) and Boolean Search (for combination of more than access point by using AND, OR and NOT operators)

2.5 Workflow

- Authentication by each field.
- Converting in to ISO format, if it is not made available.
- Correction by Global Modifications available in CDS/ISIS.

- Subject headings assigning etc.
- Uploading in to web using reformatting FST and interface developed by INFLIBNET Centre.

The working model of the system is given below in Figure III.2.

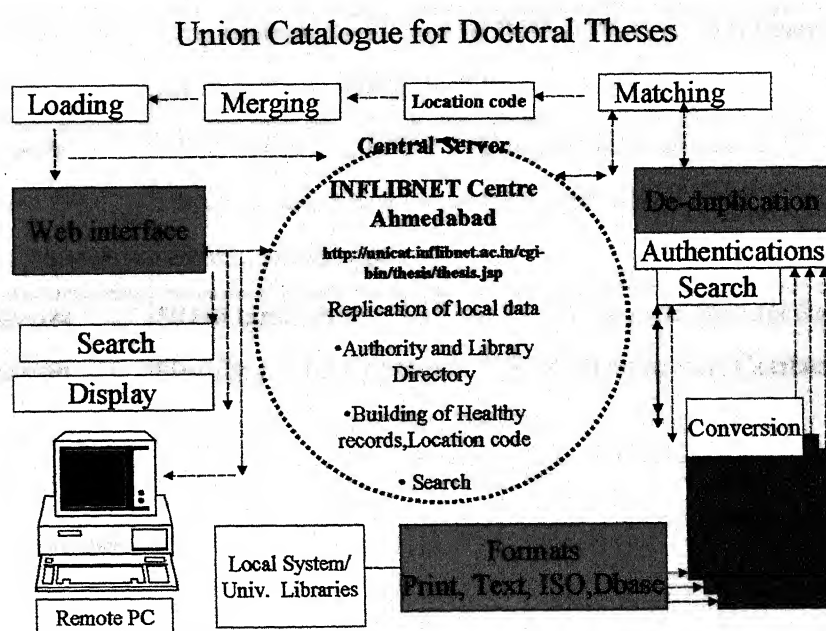


Figure III.2 - Workflow of INFLIBNET Theses Database

After receiving the data of doctoral theses from Universities, it is validated with INFLIBNET Standard Guidelines formulated based on Common Communication Format (CCF), which was suggested by the experts committee of INFLIBNET Programme constituted by UGC. Validated data is used for compilation of cataloguing information of doctoral theses at

INFLIBNET, so that submission of cataloguing information in a standardized and accepted format is entered into the centralized database for online access.

2.6 Development Environment

<i>Data Entry Level</i>	SOUL and CDS/ISIS
<i>Union Database Creation</i>	Programmes developed by INFLIBNET for duplicate check, global modifications, merging etc
<i>Server Side Programming</i>	J2EE [Java 1.2, EJB 2.0 (Enterprise JavaBeans), JSP (Java Server Pages),JDBC (Java Database Connectivity), JavaMail, Servlet, HTML, JavaScript
<i>Middleware Application Server</i>	WebLogic Server Platform 7.0, WebLogic Builder for Component Building, EJB Container, HTTP (WebServer) Container, JSP Container, Connection Pooling
<i>Database Server</i>	Microsoft MS-SQL Server 2000
<i>Documentation</i>	UML, Microsoft Visio

Table III.1 Shows the Development environment of INFLIBNET Theses database

ANNEXURE -IV

ETD RELATED SITES WORLD WIDE

Few sites restricted access to full text for external users.

Country	Name of Project or Institution	URL
Australia	University of Newcastle	http://www.newcastle.edu.au/services/library/collections/theses.html
Australia	Australian Digital Library Program	http://adt.caul.edu.au/
Austria	Dissertation Databank	http://www.arcs.ac.at/dissdb/diss
Brazil	BDTD	http://bdtb.ibict.br/bdtb/
Brazil	University of Sao Paulo	http://www.teses.usp.br/
Canada	Theses Canada Portal	http://www.collectionscanada.ca/thesescanada/index-e.html
Canada	University of New Brunswick	http://dev.hil.unb.ca/Texts/etd/
Canada	University of British Colombia	http://ahousat.library.ubc.ca/
Canada	University of Saskatchewan	http://library.usask.ca/etd/
Canada	University of Waterloo	http://etheses.uwaterloo.ca/
China	CALIS ETD System	http://www.calis.edu.cn/
Egypt	ASUNET ETD Website	http://net.shams.edu.eg
Finland	Helsinki University of Technology	http://lib.hut.fi/Diss/
Finland	University of Helsinki	http://ethesis.helsinki.fi/english.html
France	THESA	http://thesa.inist.fr/eng/Accueil.htm
France	Multi Disciplinary Theses Server	http://tel.ccsd.cnrs.fr
France	SUDOC Website	http://www.sudoc.abes.fr
German	University of Tübingen	http://www-work.ub.uni-tuebingen.de/diss.htm
Germany	Freie University, Berlin	http://darwin.inf.fu-berlin.de/work/DissSearch

Germany	Technical University, Berlin	http://edocs.tu-berlin.de/diss/index.html
Germany	Dissertation Online	http://www.dissonline.de/index_e.htm
Germany	Humboldt University Berlin	http://www.edoc.hu-berlin.de/index_en.php
Germany	RWTH Aachen	http://www.bth.rwth-aachen.de/job/disslist.pl
Germany	University of Hanover	http://www.tib.uni-hannover.de/en/special_collections/dissertations
Germany	Bremen University	http://elib.suub.uni-bremen.de/
Germany	University of Oldenburg	http://docserver.bis.uni-oldenburg.de/publikationen/dissertation/ediss.html
Germany	University of Stuttgart	http://elib.uni-stuttgart.de/opus/index.php
Germany	Bochum University	http://www.ub.ruhr-uni-bochum.de/DigiBib/DissWeb/E_Diss.html
Hong Kong	Hong Kong University of Science and Technology	http://library.ust.hk/guides/dissertations.html
Hong Kong	Hong Kong University	http://sunzi1.lib.hku.hk/hkuto/index.jsp
Hong Kong	City University of Hong Kong	http://www.cityu.edu.hk/lib/eres/thesis/guideline/
India	Indian Institute of Science	http://etd.ncsi.iisc.ernet.in
India	National Chemical Laboratory, Pune	http://dspace.ncl.res.in/dspace/handle/2048/2
India	Vidyanidhi, Mysore University	http://www.vidyanidhi.org.in
India	INFLIBNET Theses Database	http://www.inflibnet.ac.in
India	Digital Dissertation Foundation	http://www.healthmantra.com/ddf/
India	IIT Mumbai	http://www.library.iitb.ac.in/~mnj/etd/
India	PRL Ahmedabad	http://www.prl.ernet.in/~library/theses.html
India	IIT Chennai	http://www.cenlib.iitm.ac.in/docs/library/index.php?page=theses
Italy	TESI Online Website	http://www.tesionline.it/ricerca/ricerca.asp
Korea	Korea Institute of Science and technology Information	http://www.kisti.re.kr/kisti/index.jsp

Mexico	TESIUNAM	http://www.dgbiblio.unam.mx/tesiunam.html
Norway	Bergen University	http://www.ub.uib.no/elpub/NORAD/help.html
Portuguese	University of Coimbra	http://www.uc.pt/sdp/Teses/
Portuguese	DiTED, Portuguese National Library	http://dited.bn.pt/
South Africa	University of Pretoria	http://upetd.up.ac.za/UPeTD.htm
South Africa	Rhodes University	http://www.ru.ac.za/library/theses/collection-new.html
South Africa	North-West University	http://www.puk.ac.za/biblioteek/proefskrifte_e.html
South Africa	University of South Africa	http://etd.unisa.ac.za/ETD-db/
Spain	Online Doctoral Thesis Server (TDX)	http://www.tdx.cesca.es/index_tdx_an.html
Spain	Catalog of Spanish theses	http://www.cervantesvirtual.com/tesis/tesis_catalogo.shtml
Spain	TDX Online Doctoral Thesis Server	http://www.tdx.cesca.es/index_tdx_an.html
Spain	TESEO Database	http://www.mcu.es/TESEO/teseo.html
Sweden	Lund University	http://theses.lub.lu.se/postgrad/
Sweden	Karolinska Institute	http://diss.kib.ki.se/index_en.cfm
Switzerland	Swiss Federal Institute of Technology	http://e-collection.ethbib.ethz.ch/diss/index_e.html
UK	University of Edinburgh	http://www.era.lib.ed.ac.uk/index.jsp
UK	University of Leicester	http://www.le.ac.uk/li/sources/genres/theses.html
UK	Theses Alive! project	http://www.thesesalive.ac.uk/
UK	Electronic Theses Project	http://www2.rgu.ac.uk/library/e-theses.htm
UK	Index to Theses	http://www.theses.com/
UNESCO	ETD Guide	http://www.etdguide.org/
UNESCO	UNESCO Clearing House on Electronic Theses and Dissertations (ETD)	http://dbs.bbf.dipf.de/unesco/
USA	Massachusetts Institute of Technology -MIT	http://theses.mit.edu/

USA	University of Texas in Austin	http://www.utexas.edu/ogs/etd/
USA	Virginia Polytechnic State University	http://scholar.lib.vt.edu/theses/
USA	OhioLink ETD	www.ohiolink.edu/etd/
USA	Caltech University	http://etd.caltech.edu/
USA	West Virginia University	http://www.wvu.edu/~thesis/
USA	University of Florida	http://www.uflib.ufl.edu/etd.html
USA	Worcester Polytechnic Institute	http://www.wpi.edu/Pubs/ETD/
USA	University of Kentucky	http://www.uky.edu/ETD/
USA	Brigham Young University	http:// etd.byu.edu
USA	University of Pennsylvania	http://repository.upenn.edu/dissertations/
USA	Wake Forest University	http://etd.wfu.edu/
USA	University of Georgia	http://www.gradsch.uga.edu/For_Students/Enrolled_Students/etd.html
USA	UMI Digital Dissertations	http://wwwlib.umi.com/dissertations/
USA	University of North Texas	http://www.library.unt.edu/theses/
USA	Vanderbilt University	http://etd.library.vanderbilt.edu/
USA	Florida State University	http://www.ets.fsu.edu/
USA	Penn State	http://www.etd.psu.edu/
USA	University of Maine	http://www.library.umaine.edu/theses/
USA	Mississippi State University	http://library.msstate.edu/etd/
USA	East Tennessee State University	http://etd2004.etsu.edu/
USA	University of Pittsburgh	http://www.pitt.edu/~graduate/etd/
USA	Middlebury College	http://digitalcommons.middlebury.edu/dissertations/
USA	University of Tennessee	http://www.utmem.edu/grad/TDs/TDs.htm
USA	Binghamton University	http://gradschool.binghamton.edu/cs/aboutETD.html
USA	Virginia Commonwealth University	http://etd.vcu.edu/
USA	Duquesne University	http://www.library.duq.edu/etd/
USA	Georgia Tech University	http://smartech.gatech.edu:8282/dspace/handle/1853/4760
USA	Bowling Green State University	http://www.bgsu.edu/colleges/gradcol/etd/intro.htm

USA	University of Toledo	http://library.utoledo.edu/serv/etd.html
USA	Georgia Southern University	http://academics.georgiasouthern.edu/etd/
USA	Marshall University	http://www.marshall.edu/etd/
USA	Rochester Institute of Technology	http://wally.rit.edu/userservices/binding.html
USA	Indiana University-Purdue University	http://dspace.iupui.edu/handle/1805/199
USA	New Jersey Institute of Technology	http://www.library.njit.edu/etd/index.cfm
USA	Ohio University	http://www.ohiou.edu/graduate/etd.htm
USA	University of California	http://old.lib.ucdavis.edu/resources/thesis.html
USA	University of Iowa	http://www.grad.uiowa.edu/Students/CurrentStudents/ETD/
USA	University of Texas Southwestern Medical Center at Dallas	http://www4.utsouthwestern.edu/library/ETD/etd.cfm
USA	Florida International University	http://etd.fiu.edu/
USA	University of West Florida	http://www.research.uwf.edu/grad-studies/ETD/default.htm
USA	North Carolina State University	http://www2.acs.ncsu.edu/grad/ETD/
USA	University of Louisiana	http://etd.lsu.edu/ETD-db/ETD-search/search
USA	NDLTD	http://www.ndltd.org/

A List of NDLTD Members is also available at
<http://www.ndltd.org/membership/dir.html>

ANNEXURE
QUESTIONNAIRES USED

1. LIBRARIANS

PART I: Printed Ph D Theses / Dissertations

Tick more than one, wherever necessary

1. Name of your University? :
2. Till date approximately how many doctorates were awarded in your university since its establishment?
Less than 500 [] 501-1000 [] 10001-2000 [] more than 2000 []
3. How are the University Research Departments located?
Single Campus [] Multi Campuses [] Regional Campuses []
4. Where are you maintaining Ph D Theses collections?
Central Library [] Dep. Libraries [] Campus Libraries []
University Office [] Any other [] Mention it
5. What is your user access policy for Ph D theses collection?
Closed Access [] Open Access [] User Category Based [] No Access []
6. To whom you allow the access?
Students [] Research Scholars [] Faculty [] Non-Members []
Any other [] Mention it
7. Do you process them?
Cataloguing [] Classification [] None [] Any other [] Mention it
8. What services you are providing based on them?
Publishing Index [] Inter-library loan [] Photocopying []
Any other [] Mention it
9. According to you, what are the obstacles faced in accessing Ph D Theses collection in your University?

No Obstacles	[]
Unavailability in Library	[]
Closed Access	[]
Any Other	[] Mention it

10. How do you rate the contribution of your existing Ph D Theses collection, in furthering doctoral research?
High Importance [] Medium Importance [] No Importance []
11. Does the Ph D awards in your University is regularly listed in the University News's (AIU) *Theses of the Month* column?
Yes [] No []
12. Do you have a collection of Ph D Theses AWARDED BY other Universities?
Yes [] No []

PART II: Electronic Theses and Dissertations

13. Have you created a computerised database of Ph D Theses available in your University?
Yes [] No []
14. Are you aware about the concept of Electronic Theses and Dissertation Digital Libraries [ETD-DL] initiatives at international level?
Yes [] No []
15. Does your University has adopted a policy for collecting electronic version of Ph D Theses, while submission?
Yes [] No []
16. Do you support providing online full-text access to Ph D Theses of your University?
Yes [] No []
17. If yes, what can be the access policy?
On Library Intranet, for users coming to library. []
On Campus Intranet, for your University use only []
On internet, for global access []
18. What are the obstacles you foresee in proposing / creating an ETD-DL System in your University :
- | | |
|---------------------------------|-----|
| Copy Right Problems | [] |
| Plagiarism | [] |
| Infrastructure Problems | [] |
| Lack of Expertise | [] |
| Lack of Administrative Supports | [] |

- | | |
|--------------------------|--|
| Lack of Faculty Supports | <input type="checkbox"/> <input type="checkbox"/> |
| Lack of Students Support | <input type="checkbox"/> <input type="checkbox"/> |
| Lack of Funding | <input type="checkbox"/> <input type="checkbox"/> |
| Any Other | <input type="checkbox"/> <input type="checkbox"/> Mention it |

19. According to you, what benefits ETD-DL will have, as far as your University is concerned?

- | | |
|--|---|
| Enhanced image in Information Technology advancements | <input type="checkbox"/> <input type="checkbox"/> |
| Increased visibility of University Research | <input type="checkbox"/> <input type="checkbox"/> |
| Avoiding Duplication in Research | <input type="checkbox"/> <input type="checkbox"/> |
| Expertise in building Digital Libraries/Institutional Repositories | <input type="checkbox"/> <input type="checkbox"/> |
| Promoting Electronic Publishing | <input type="checkbox"/> <input type="checkbox"/> |
| Libraries role in content development | <input type="checkbox"/> <input type="checkbox"/> |

20. Does your University's policy allow for providing Full Text of the Ph D Theses in electronic format to any organization for hosting on a digital archive?

Yes ☐ No ☐

21. If yes, what type of organization you select.

- | | |
|--|---|
| Any National Organisation designated by UGC | <input type="checkbox"/> <input type="checkbox"/> |
| Any University designated by UGC | <input type="checkbox"/> <input type="checkbox"/> |
| Any repository funded by a Private body or NGO | <input type="checkbox"/> <input type="checkbox"/> |
| None of the above | <input type="checkbox"/> <input type="checkbox"/> |

22. Are you aware about INFLIBNET's National Online Database of Ph D Theses?

Yes ☐ No ☐

23. Are you contributing data to INFLIBNET Theses Database?

Yes ☐ No ☐

24. Have you already created a Digital Library of Electronic Theses Dissertation of your University?

Yes ☐ No ☐

25. If No, do you have a plan to create an ETD-DL for your University by the year 2005?

Yes ☐ No ☐

26. If Yes, what supports are you looking for?

- | | |
|---------------------------------|----------------|
| Governmental Policies (UGC etc) | [] |
| University Policies | [] |
| Infrastructure Support | [] |
| Technical Expertise | [] |
| Support from Academics | [] |
| Financial Supports | [] |
| Any Other | [] Mention it |

27. Librarian's Name and Signature :

2. RESEARCH GUIDES

** Tick more than one, wherever necessary*

1. Name and Designation :
2. University and Department:
3. Do you advise Ph D Scholars to consult the already available doctoral theses in their area of study? Yes [] No []
4. According to you, what are the obstacles faced in accessing Ph D Theses collection?

No Obstacles	[]
Closed Access	[]
Available at a Distant Place	[]
No Mechanism to Get it	[]
Language	[]
Un available in Library	[]
Any Other	[] Mention it
5. How you rate the contribution of Ph D Theses collection, in furthering Doctoral research?
High Importance [] Medium Importance [] No Importance []
6. Have you accessed INFLIBNET's National Online Database of Ph D Theses available at www.inflibnet.ac.in ?
Yes [] No []

7. What sources you rely upon during the conceptualization of research topic, to avoid duplication in research?

AIU Handbook [] AIU University News [] INFLIBNET Database []
Journals/Newsletters [] Any other [] Mention it.

8. Are you aware about the concept of Electronic Theses and Dissertation Digital Libraries [ETD-DL] initiatives at international level?

Yes [] No []

9. Do you support in obtaining an electronic format (soft copy) of Ph D Theses of your scholars, by the University?

Yes [] No []

10. Do you support online full-text access of them through a Digital Library?

Yes [] No []

11. If Yes, what will be the access policy?

On Library Intranet, for users coming to library. []
On Campus Intranet, for your University use only []
On internet, for global access []

12. If No, what are the reasons: *Tick more than one, if necessary*

Copy Right Problems []
Chances for Plagiarism []
Lack of Expertise and Infrastructure []
Lack of Administrative Policies []
Lack of Faculty Supports []
Lack of Students Support []
Lack of Funding []
Not interested for a wider access to Theses []
Any Other [] Mention it

13. Do the Research Scholars under your guidance; publish their Ph D research findings in the following forms?

As a Book [] As Journal Article(s) [] Conference Paper(s) []
No Publications []

14. Signature of the Research Guide :

3. RESEARCH SCHOLARS

** Tick more than one, wherever necessary*

1. Name of Research Scholar and parent institution:
2. University and Department Registered for Ph D :
3. Are you consulting Ph D Theses during the course of your Ph D research?
Never ☐ From your University only ☐ From other Universities ☐
4. What are the obstacles you have faced in accessing Ph D Theses?

No Obstacles	<input type="checkbox"/>
Closed Access	<input type="checkbox"/>
Available at a Distant Place	<input type="checkbox"/>
No Mechanism to Get it	<input type="checkbox"/>
Language	<input type="checkbox"/>
Un available in Library	<input type="checkbox"/>
Any Other	<input type="checkbox"/> Mention it
5. How you rate the contribution of Ph D Theses collection, in furthering Doctoral research??
High Importance ☐ Medium Importance ☐ No Importance ☐
6. Have you accessed INFLIBNET's National Online Database of Ph D Theses available at www.inflibnet.ac.in ?
Yes ☐ No ☐
7. What sources you rely upon during the conceptualization of research topic, to avoid duplication in research?
AIU Handbook ☐ AIU University News ☐ INFLIBNET Database ☐
Journals/Newsletters ☐ Any other ☐ Mention it.
8. Are you aware about the concept of Electronic Theses and Dissertation Digital Libraries [ETD-DL] initiatives at international level?
Yes ☐ No ☐
9. Are you willing to provide an electronic format (soft copy) of your Ph D Theses to your University?
Yes ☐ No ☐

10. Do you support online full-text access to your Ph D Theses through a Digital Library?
Yes [] No []

11. If Yes, what can be the access policy?

On Library Intranet, for users coming to library. []
On Campus Intranet , for your University use only []
On internet, for global access []

12. If No, what are the reasons:

Copy Right Problems []
Chances of Plagiarism []
Lack of Expertise and Infrastructure []
Lack of Administrative Policies []
Lack of Faculty Supports []
Lack of Students Supports []
Lack of Funding []
Not interested for a wider access to my Thesis []
Any Other [] Mention it

13. Do you have a plan to publish your Ph D research findings in the following forms?
As a Book [] As Journal Article(s) [] Conference Paper(s) []
No Plan []

14. Signature of the Research Scholar :

ANNEXURE-VI

UNIVERSITIES COVERED

1. List of Universities: Librarians Responded (65)

<i>Name of the University</i>	<i>State</i>
1. Aligarh Muslim University, Aligarh	Uttar Pradesh
2. Andhra University, Visakhapatnam	Andhra Pradesh
3. Anna University, Chennai	Tamil Nadu
4. Avinashlingam University, Coimbatore	Tamil Nadu
5. B R Ambedkar University, Agra	Uttar Pradesh
6. Banaras Hindu University, Varanasi	Uttar Pradesh
7. Banasthali Vidyapith, Banasthali	Rajasthan
8. Bangalore University, Bangalore	Karnataka
9. Bhavnagar University, Bhavnagar	Gujarat
10. Birla Institute of Technology, Mesra	Bihar
11. Birla Institute of Technology and Science, Pilani	Rajasthan
12. Bundelkhand University, Jhansi	Uttar Pradesh
13. Cochin University of Science and Technology, Kochi	Kerala
14. Dayalbagh Research Institute, Agra	Uttar Pradesh
15. Deccan College of Post Graduate Studies, Pune	Maharashtra
16. Devi Ahilya Vishwa Vidyalyaya, Indore	Madhya Pradesh
17. Dibrugarh University, Dibrugarh	Assam
18. G G Indraprastha University, New Delhi	Delhi
19. Gandhigram Rural Institute, Gandhigram	Tamil Nadu
20. Gokhale Institute of Political Science, Pune	Maharashtra
21. Gujarat University, Ahmedabad	Gujarat
22. Gulbarga University, Gulbarga	Karnataka
23. Guru Jambheshwar University, Hisar	Haryana
24. Himachal Pradesh University, Shimla	Himachal Pradesh
25. Indian Institute of Science, Bangalore	Karnataka
26. Indira Gandhi Inst for Developmental Research, Mumbai	Maharashtra
27. Indira Kala Sangith Vishwavidyalaya, Khairagarh	Chhattisgarh
28. Jain Vishwa Bharati, Lundnun	Rajasthan
29. Jamia Millia Islamia, New Delhi	Delhi
30. Jawaharlal Nehru Technological University, Hyderabad	Andhra Pradesh
31. Jiwaji University, Gwallior	Madhya Pradesh
32. Kannada University, Hampi	Karnataka
33. Karnatak University, Dharwad	Karnataka
34. Kashmir University, Srinagar	J & K
35. M D University, Rohtak	Haryana
36. M S University of Baroda, Vadodara	Gujarat

- | | |
|---|----------------|
| 37. Maharshi Dayanand Saraswathi University, Ajmer | Rajasthan |
| 38. Mahatma Gandhi University, Kottayam | Kerala |
| 39. Mangalore University, Mangalore | Karnataka |
| 40. Manonmaniam Sundaranar University, Tirunelveli | Tamil Nadu |
| 41. Mother Teresa Womens University, Kodaikanal | Tamil Nadu |
| 42. Nagaland University, Kohima | Nagaland |
| 43. Nagpur University, Nagpur | Maharashtra |
| 44. Osmania University, Hyderabad | Andhra Pradesh |
| 45. Pondicherry University, Pondyicherry | Pondicherry |
| 46. Pt Ravisankar Shukla University, Raipur | Madhya Pradesh |
| 47. Punjab University, Chandigarh | Punjab |
| 48. Punjabi University, Patiala | Punjab |
| 49. Ranchi University, Ranchi | Bihar |
| 50. Saurashtra University, Rajkot | Gujarat |
| 51. Shivaji University, Kolhapur | Maharashtra |
| 52. SNDT Womens' University, Mumbai | Maharashtra |
| 53. South Gujarat University, Surat | Gujarat |
| 54. Swami Ramanad Theerth University, Nanded | Maharashtra |
| 55. Tata Institute of Social Science, Mumbai | Maharashtra |
| 56. Thapar Institute of Engineering and Technology, Patiala | Punjab |
| 57. University of Burdwan, Burdwan | West Bengal |
| 58. University of Calcutta, Kolkatta | West Bengal |
| 59. University of Calicut, Kozhikode | Kerala |
| 60. University of Goa, Goa | Goa |
| 61. University of Hyderabad, Hyderabad | Andhra Pradesh |
| 62. University of Kerala, Thiruvananthapuram | Kerala |
| 63. University of Madras, Chennai | Tamil Nadu |
| 64. University of Pune, Pune | Maharashtra |
| 65. Viswabharati, Shantiniketan | West Bengal |

2. List of Universities: Librarians Not Responded (22)

1. Allahabad University, Allahabad
2. Amravati University, Amravati
3. Annamalai University, Annamalai Nagar
4. Arunachal University, Itanagar
5. Berhampur University, Berhampur
6. Bharatidasan University, Tiruchirappally
7. Delhi University, New Delhi
8. Gauhati University, Gauhati
9. Jadavpur University, Kolkatta
10. Jammu University, Jammu
11. Jawaharlal Nehru University, New Delhi

12. Kurukshetra University, Kurukshetra
13. Madurai Kamaraj University, Madurai
14. Manipur University, Imphal
15. National Law School of India, Bangalore
16. North Eastern Hill University, Shillong
17. North Gujarat University, Patan
18. Sri Satyasai Institute of Higher Learning, Anantpur
19. Tripura University, Agarthala
20. University of Mysore, Mysore
21. Vidyasagar University, Midnapore
22. Vikram University, Ujjain

3. Universities Covered for Research Guides (27)

<i>Name of the University</i>	<i>State</i>
1. Aligarh Muslim University	Uttar Pradesh
2. Andhra University	Andhra Pradesh
3. Anna University	Tamil Nadu
4. Assam University	Assam
5. Bangalore University	Karnataka
6. Bengal Engineering and Science University	West Bengal
7. Bharathiar University	Tamil Nadu
8. Bharathidasan University	Tamil Nadu
9. Birla Institute of Technology	Bihar
10. Devi Ahilya University	Madhya Pradesh
11. Jadavpur University	West Bengal
12. Kashmir University	Jammu and Kashmir
13. Maharshi Dayanand University	Haryana
14. Mahatma Gandhi University	Kerala
15. Mangalore University	Karnataka
16. Nagarjuna University	Andhra Pradesh
17. Pondyicherry University	Tamil Nadu
18. Saurashtra University	Gujarat
19. SP University	Gujarat
20. University of Burdwan	West Bengal
21. University of Calicut	Kerala
22. University of Goa	Goa
23. University of Kerala	Kerala
24. University of Madras	Tamil Nadu
25. University of Pune	Maharashtra
26. Vikram University	Madhya Pradesh
27. Banasthali Vidyapeeth	Rajasthan